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New England Surgical Society.

HYPERTROPHIC ILEO-CAECA TUBERCULOSIS.

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AMONG the interesting surgical problems connected with the tubercular infections, none is more important or more interesting than those which arise from the tubercular infections of the right lower quadrant of the abdomen.

The appendix, the mesenteric glands of the ileo-caecal angle, and the caecum may each by itself, or in any combination with the others, be the seat of invasion. Even in general tubercular peritonitis and in the widespread enteric forms of tuberculosis, the manifestations in this region are apt to be more extensive and more advanced than elsewhere.

But independently of these more general forms, each of these three structures may be found to be the seat of a purely localized process, even though no other active foci are apparent, a condition comparable to the tubercular glands of the neck and the tubercular processes in the bones.

It is to such a process, affecting the caecum and the region of the ileo-caecal valve, that we venture to ask your attention for a few moments: Its existence had attracted little attention until within the last 25 years, "although a localized tubercular deposit causing thickening of the coats of the caecum" had been pointed

out as long ago as 1849, and Czerny in Germany and Durante in Italy had made a few excisions of tubercular caeca.

The interest in ileo-caecal tuberculosis began in 1891 with the announcement from Billroth in Vienna and Hartmann and Pillier in Paris, that what had often passed as cancer of the caecum was really tuberculosis,—not malignant at all, but equally capable of excision, with a better prospect of permanent relief.

Hartmann's classification still stands, viz., an ulcerative and a hypertrophic form. In the first or ulcerative form, in Hartmann's own words, "the whole of the ileo-caecal region is lost in a mass of adhesions, interspersed with caseous matter, and even purulent tuberculous cavities, communicating sometimes with the intestinal tract." It is not capable of radical removal, but may often be relieved by incision and drainage, or by exclusion through anastomosis.

The second or hypertrophic form is the so-called tubercular tumor of the caecum, in which "the caecum appears externally increased in volume, more or less mobile in the iliac fossa, and often included in a fibro-adipose mass which attains a thickness of 3-4 c. m." It is of much surgical interest because it is so easily mistaken for cancer, and because it is so readily and satisfactorily amenable to surgical intervention.

It is not very common, although since attention was drawn to it, in 1891, upwards of 300 cases have been reported. Yet Wiener in his article on Ileocecal Tuberculosis in the *Annals of Surgery* for May, 1914, said that he was

"unable to find a single monograph by either an English or an American surgeon on this topic."

In 1903, in a paper on the Surgical Aspect of Cancer of the Intestine, we reported the case of a young woman, 30 years old, from whom was removed a tumor of the caecum, sections from which showed the intestinal wall to be about four times its normal thickness, and to be infiltrated with an adeno-carcinoma.

The description of the specimen, a review of the clinical history, and the fact that she was alive and well six years later, suggest very strongly that we fell into the error which Hartmann says is so easy, and were really dealing with a hypertrophic tubercular tumor of the caecum, and not with malignant disease.

Within the last three years we have, however, met with two typical illustrations of the hypertrophic form of ileo-caecal tuberculosis, which are, we hope, worth a brief consideration:

CASE 1. Mary S. W. C. H. Admitted Oct. 18, 1913. Syrian, 15 years old. Parents both well. Was in hospital two years ago, having been referred from the out-patient department with a diagnosis of tubercular peritonitis, which was not confirmed in the house, "no diagnosis" being entered on the record. The record contains the following pertinent note.—"Lungs negative save for suggestion of dry ruts at right base, no dulness." "Abdomen,—slight tenderness on deep pressure all over, especially right iliac fossa."

Since that time has suffered from severe pain in the right inguinal region, and has noticed a hard, tender mass in the right hypochondrium which has increased in size during the past two months. She has lost weight, is troubled much by night sweats and feels weak all the time. She has never menstruated.

Physical Examination.

Fairly nourished, but poorly developed girl. Chest: Lungs are resonant throughout—breathing somewhat harsh over right apex, and there are a few fine moist rales throughout both lungs. Vocal and tactile fremitus normal. Heart negative. Abdomen: a hard mass is palpable in the right hypochondriac region, which moves up and down with respiration, not definite in outline, and is very tender. There is marked spasm of the right rectus. Extremities negative. Urine 1014, no albumen, no sugar. Operation on the 21st by Dr. Gage.

Right rectus incision. Small intestine and appendix apparently normal, but caecum and lower part of ascending colon were thickened and formed a somewhat cylindrical mass of greater consistency than normal, but freely movable. The lymphatic glands in the ileo-caecal angle were somewhat enlarged. It being evident that obstructive constriction was imminent, the appendix, the caecum and the ileo-caecal glands were removed, the ends of ileum and colon closed, and a lateral anastomosis established between ileum and ascending colon.

Convalescence was uneventful, the wound healing by first intention. Discharged relieved on the 19th day after the operation. Sept. 11th, 1914, patient returned to the hospital for observation, and is recorded as "well developed and nourished; gener-

al appearance much better than one year ago; has gained in weight and height a good deal since discharge from the hospital; eats well, no pain or tenderness. Moderate enlargement of cervical and inguinal lymph nodes." Heart and lungs were normal, and abdomen showed "no masses or tenderness." "General condition very good."

X-ray study by the bismuth injection method was thus reported by Dr. P. H. Cook: "Intestine normal from rectum to splenic flexure, thence transverse colon turns obliquely downward to the approximate position of the hepatic flexure. The bowel is much curled on itself at this point, but portions of the ascending colon can be recognized. Bismuth has passed ileo-colonic junction."

Pathological Report.

Specimen (see Plate I, Fig. 1) consists of the caecum, 3 cm. of ileum, appendix and a few small lymphatic glands. The walls of the caecum are somewhat irregularly, but very markedly thickened and increased in density. The lumen is contracted, is irregular in calibre, varying between 5 and 12 m.m. in diameter. The surface is partly covered with smooth serosa, but for the most part presents irregular masses of fat, some of which resemble the normal appendices epiploicae, while much seems to be mesenteric fat attached to the caecal wall. Splitting the specimen longitudinally from front to back the lumen is exposed throughout and shows the mucosa to be rough and irregular, with small papillae projecting in places, while elsewhere there are areas which seem denuded of epithelium, are rough and covered with grayish sloughs. The cut edges show the thickness of the walls to vary between 4 and 15 m.m., the zone of greatest thickness being just above the ileo-caecal junction. Just above this ring of thickening is a thinned area in which a portion of the wall seems replaced by fatty areolar tissue. In general, however, the wall is firm, dense, of pearly gray color, with hemorrhagic points near and in the mucosa. The ileo-caecal opening is contracted to 4 m.m., but there is no apparent involvement of ileum beyond the caecal wall. The caput is relatively less affected than the wall of caecum lower down, but the entire process extends from the caput 9 c.m. down the caecum terminating rather abruptly as a ring encircling the gut.

The appendix apparently is uninvolved. The lymphatics are small—5 to 8 m.m. in diameter, and on section are of uniform consistency and pinkish in color.

Microscopical Sections. (See Plate IV, Fig. 1.)

In these it is seen that the entire thickness of the caecal wall is greatly altered by the disease process. The changes are most severe in the mucosa and submucosa;—in muscularis and subserosa, while less destructive, they are distinct and characteristic. The mucosa presents varying degrees of departure from normal. In places the glands are pushed aside by small foci of round-cell aggregation in which are central spaces resembling germinal centers of lymph follicles; in other places several such areas seem combined, and the central parts are occupied by giant-cells with peripherally arranged nuclei, or necrotic spots, or both.

In other portions these accumulations give place to large areas, where but little can be made out but round-cell and polynuclear infiltration with pushing aside and upward of the glands by projecting

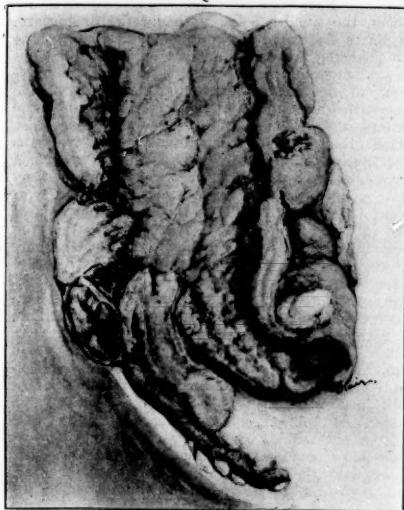


PLATE I. FIG. 1. HYPERPLASTIC TUBERCULOSIS OF CAECUM.

CASE 1. M. S. Drawing of gross specimen, split through the middle, showing irregular thickening of wall and fatty overgrowth. About midway of the posterior wall is an area of loss of substance evidently a healed deep ulceration.



PLATE I. FIG. 2.

CASE 2. L. A. H. Drawing of gross specimen showing general contraction of caecum with thickening of walls and fatty deposits.

processes of connective tissue, all showing frequent extravasation of red blood corpuscles. These cell accumulations are often necrotic within, and the mucous follicles are distorted, often stretched into cyst-like cavities or projected into the lumen as papillary or villous processes. In the most damaged places the infiltration extends through the underlying submucosa, the central part is necrotic and has sloughed away, leaving an ulceration walled with new-formed connective tissue densely infiltrated with round cells, polymuclear leucocytes, often hemorrhagic and containing scattered fragments of the mucous follicles.

The submucosa is the seat of other foci of round cell infiltration often with central giant cells. These are also found scattered in the muscularis and subserosa, which are both much infiltrated both in the neighborhood of the foci and diffusely, many polymuclears being present. There is marked increase of the connective tissue elements and capillaries. Here and there are interruptions in the continuity of the muscularis with replacement by connective and areas of fatty tissue, and the whole width of the section is narrowed. The appendix is not evidently involved. The mesenteric lymph nodes present numerous groups of cells of the so-called "epithelioid" type, occasionally with a central giant-cell. There is no breaking-down evident in any of the glands examined.

Diagnosis—Tuberculosis of the caecum.

CASE 2. L. A. H. Admitted Nov. 17, 1914. Merchant, 71 years. Has suffered for years from attacks of cardiac asthma. One and one-half years ago began to be troubled by gas in abdomen, which was temporarily relieved by treatment. Five months ago an attack of "ptomaine poisoning" lasted a week, during which period it was found difficult to pass rectal tube.

Two months later had an attack of severe abdominal pain with nausea and great distress, and again difficulty in giving enemas was experienced. Another attack three weeks later. In October he noticed a soreness and a bunch in the right side of the abdomen. Had been seen and examined in Boston, where he had received a diagnosis like our own of cancer of the caecum.

Physical Examination.

Well developed and fairly nourished, but rather pale. Pulse 90, temp. 97°, systolic blood pressure 130, diastolic 80. Tongue dry and coated—there are a few small, discrete lymph glands palpable in the neck. Chest: Heart area and sounds normal, regular. Lungs negative save for broncho-vesicular respiration and medium dry râles below angle of scapula in right back. Abdomen: Lax and soft, liver and spleen not palpable. There is a large, firm mobile mass palpable in the lower right quadrant with moderate tenderness on pressure, no muscle spasm. Extremities: knee-jerks present and equal, possible slight oedema of ankles,—no paralysis. Urine: Acid, 1024—no albumen, no sugar.

Operation—Nov. 18, Dr. Gage. Gas-oxygen, Dr. Hunt.

Five-inch right rectus incision. Caecum found to be the seat of a firm tumor the size of the closed fist, suggestive of tuberculosis or cancer. Caecum with about two inches of ileum, the appendix, and five inches of colon removed with mesentery. Open ends of intestine closed, and a lateral anastomosis between ileum and transverse colon was then made.

Convalescence was complicated by severe and persistent vomiting during third and fourth week, and by suppurative right parotitis, which required opening on the forty-eighth day. Discharged relieved on the fifty-second day.

Sept. 26, 1916. Reports himself as in good health and able to attend daily to his large business. Has gained much in weight. Says he notices slight discomfort in right side of abdomen, and is subject to spells of mental depression which are relieved by saline cathartics. X-ray study by barium injection is thus reported by Dr. Cook: "Plate shows large intestine normal to about the middle of the transverse colon. Above this point the colon is dilated and terminates at the region of hepatic flexure in a blind end. Lower part of ileum is also shown, proving patency of anastomosis."

Pathological Report.

Specimen (see plate I, Fig. 2, and Plate II, Fig. 1) consists of the caecum, part of the ascending colon, appendix and 5 cm. of the ileum. The caecum and the ascending colon measure 15 cm. in length (after hardening), and the appendix 7 cm. in length, and 6 to 8 mm. in diameter. The caecum is represented by a firm mass, which also involves the ileum for 2 cm. Median section reveals extreme thickening and contraction of the walls of the caecum for a distance of 7 cm. from the caput caeci and 2 cm. into the ileum. In both it ends rather abruptly as an encircling ring of thickening developed chiefly toward the lumen, which is thereby reduced in caliber to 5 to 7 mm. in the caecum, and 3 to 4 mm. in the affected portion of the ileum. The ileo-caecal valve is obliterated as such, though it is not absolutely occluded. The mucosa beyond the lesion presents regular transverse rugae, which disappear as it mounts the ring of thickening, merging into a thin, irregularly ridged lining for the constricted portion, and showing little resemblance to a mucous membrane. The cut edges of the growth are 1 cm. thick above the ileo-caecal junction and 2 cm. in the caput. They are smooth and glistening and present quite well demarcated layers, which from within outward are: (1) the pearly edge of the mucosa, 1 or 2 mm.; (2) a layer of radially striated firm tissue, 4 to 8 mm., and best developed in the caput; and (3), a layer of smooth whitish firm tissue, 3 to 6 mm. thick. Scattered through the layers, but most numerous in proximity to the lumen, are pin-head whitish nodules. The specimen is covered in places by smooth serous membrane, but for the most part, and especially about the caecal portion, there are shaggy pendants of fatty tissue, and in places this fatty structure seems to spring from deep in the substance of the growth. The caecal end of the ileum also exhibits a striated, pearly thickening 6 mm., and as nearly as can be calculated, involving only 2 to 2½ cm., and ending less abruptly than in the caecum. The appendix is 8 mm. in diameter and not apparently involved in the process.

Microscopical Sections. (See Plate II, Fig. 3 *et seq.*)

The histological picture varies somewhat in sections from different parts of the specimen. Those from the caecal wall, well below the ileo-caecal junction, show the mucosa to be the seat of foci consisting of a central giant cell surrounded by a loose structure of cells of "epithelioid" type, more or less necrotic according to size of lesion, the whole surrounded by a zone of lymphocyte infil-

tration which extends into the interglanular spaces, the tubules being pushed aside or upward. In places these foci are confluent and necrotic, the tubules being broken up, and are apparent as groups of swollen goblet cells scattered through the periphery of the focus. Where the continuity of the mucosa is interrupted by this process, the necrotic centers have evacuated, leaving deep depressions, which often extend into submucosa and have walls of necrotic tissue densely infiltrated with red blood corpuscles, poly- and mononuclear leucocytes, many of the polynuclears being of the eosinophile type. Giant cells are frequent in the deeper portions of the inflammatory zone. The capillaries in the vicinity of the foci are injected, and there is more or less hemorrhage into the tissues near the more destructive lesions. The submucosa is the seat of many of these foci of giant cells, endothelial leucocytes and round cells on a supporting recticum of fibroblastic origin, in many places lacking nuclei and showing other necrotic changes, of which some of the leucocytes partake. The adjacent connective tissue shows marked proliferative effort, both in the endothelium of the blood and lymph spaces and the fiber cells, with increase of the intercellular substance. The muscularis is much thickened and distorted by hemorrhagic and leucocytic invasion of the intermuscular stroma, and by foci similar to those above described, which traverse this layer in columns perpendicular to the lumen of the bowel, but with a tendency for the foci to remain discrete, with little necrosis. Reaching the subserosa, the foci spread longitudinally again. Here there is also marked increase in connective tissue and capillaries. The larger blood vessels are engorged and their walls thickened by increase in the adventitia. The serous coat is lacking in most sections, areas of adipose tissue constituting the outer layer, for the most part.

In the sections from the caput the mucosa is destroyed as such, being represented by a few remnants of tubules supported by a new formed connective tissue rich in capillaries. There is no covering epithelium, the surface being necrotic fibrin and tissue, with a wall of polynuclear infiltration demarcating it from deeper portions. The other layers present foci like those described, but modified by relative absence of the leucocytic zone, shrinkage of the giant cells and surrounding recticum, which is vacuolated. Everywhere in the affected portions of the different layers is seen new formed fibrous connective tissue, which predominates over the muscle tissue and separates its bundles.

In the sections from the affected part of the ileum the more active condition of invasion with necrosis and ulceration is found. The appendix presents marked increase in lymphoid elements, but otherwise seems unaffected.

Diagnosis—Hyperplastic tuberculosis of the caecum and lower end of ileum.

These cases of hypertrophic ileo-caecal tuberculosis appear to be equally common in male and female, and though usually found between the ages of 20 and 40, may occur at any age, as indicated in our two cases—and 71 is older than any case of which we have been able to obtain the record.

The pathological process as illustrated in Plate II, Fig. 3, *et seq.*, seems to be one of tubercular invasion by way of the mucus mem-

brane, with necrosis, ulceration and central discharge, but in which the conservative forces, as expressed by the production of limiting fibrous overgrowth, have largely gained the ascendancy. The evident destruction and repair to which the mucosa and submucosa have been subject together with the concentric narrowing of the lumen and longitudinal shrinkage suggest these structures to have been the first to suffer, while the columns of round-cell infiltration with frequent tubercles, with but little necrosis, which are scattered through the subserous layer, may be interpreted as more recent extensions of the process. The muscularis is much less affected than either the submucous or subserous layers, but is markedly thickened, apparently quite as much



PLATE II. FIG. 1. HYPERSTROPHIC TUBERCULOSIS OF CECUM.
Photograph of specimen from Case 2, split longitudinally and then diverging into ileum and into caput. Note extension of growth into ascending colon at A.

by contraction of the viscera as by the inflammatory process. The extensive fatty deposits and even ingrowths are doubtless a part of the conservative effort, and supplement the more efficacious fibrous tissue which is formed in excess here, as it is in other parts of the body wherever it wages a strong fight against tuberculosis.

Unlike the entero-peritoneal type the hypertrophic form of caecal tuberculosis is rarely accompanied by other active foci of the disease; which favors the contention that it is a primary focus resulting from an infection by way of the intestinal contents, rather than by way of the blood or lymphatic channels.

Where ileo-cecal involvement occurs as a complication of pulmonary tuberculosis, the ulcerative entero-peritoneal type is found. That



CASE 2. L. A. H. Illustrates thickening at ileo-cecal junction. Sections from A show active tuberculosis.

these severe lesions should go with cases where the resistance is already overwhelmed by the ravages of the disease elsewhere is to be expected. So when we find a single lesion in a structure which, like the skin or the cecum, allows of the ready discharge and removal of necrotic material, it is logical to expect evidence of concentrated resistive effort with retardation of the destructive, and exaggeration of the repair processes; hence the indurative character of the lesion with which we are dealing, like that in lupus (Baum), or the "fibroid phthisis" of long-standing pulmonary tuberculosis.

The disease is the same, and the tissue reaction is the same, the difference being in degree and dependent on (1)—the strain or virulence of the infection; (2)—the individual's power of



PLATE II. FIG. 3.
Photomicrograph under low power showing early invasion of mucosa by tubercle. From Case 2, near advancing edge of process in cecum.

resistance; (3)—the character of the viscera affected.

As affecting the caecum, while similar up to a certain point where the reaction of healing fails or becomes dominant, the resulting conditions differ distinctly both as to the pathological picture and the clinical manifestations,—the one, so-called entero-peritoneal type, progressing to perforation with peritonitis or abscess formation; the other so-called hypertrophic type to which our cases belong, progressing toward scar formation and mechanical interference with the function of the bowel by tumor formation and obstruction. Assuming the foregoing conception of the pathology to be correct, as the histological findings in our two cases indicate, the term "hypertrophic," while a convenient clinical designation, seems misapplied. True, there is an increase in bulk of the caecum, but on analysis we find that it is due not to "an increase in bulk of pre-existing normal parts" (Dunglison) but, on the contrary, there is an actual loss of mucosa, while the increase in bulk is due to infiltration by foreign cells with excessive proliferation or hyperplasia of fibrous cells from the connective tissue.

Without aspiring to a reputation for hair-splitting, we venture to suggest the designation "fibrous hyperplastic tuberculosis of the caecum" as more in keeping with the actual evidence of the histological picture.

Our sections from Case 2 reveal a different degree of activity in the distal portion from that in the caput and near the ileo-caecal junction; in the former, infiltration and necrosis are most prominent, while in the latter disappearance of inflammatory products with connective tissue overgrowth are most characteristic. In the small portion of ileum involved the more acute condition prevails. Thus it may be assumed that the original site of the disease is in the region of the caput, and the extension is downward, as held by Hartmann, and upward into ileum very slightly.

These cases present very considerable difficulties in diagnosis. The onset is slow, gradual and usually associated with vague indefinite pains in the right iliac fossa, and symptoms of intestinal indigestion. At this stage it is practically impossible to rule out a chronic appendicitis. When to these symptoms are added an increasing constipation, with attacks of colicky pain, and the discovery of a movable tumor, the probability of malignant disease with stricture is at once suggested.

At any period of the disease the possibility of tuberculosis of the ileo-caecal glands must not be overlooked. A family or personal history of tuberculosis should, of course, arouse the suspicion of the same lesion when trouble is suspected in the region of the caecum, but it is by no means always present, and its absence must not be emphasized too strongly in consideration of lesions in this vicinity.



PLATE III. FIG. 1. TUBERCULOSIS OF CAECUM.
Mucosa comparatively normal. Submucosa the seat of many tubercles which are so grouped as to indicate lateral extension of the process.



PLATE III. FIG. 2.
Muscularis from same section showing tubercles in columns generally perpendicular to the plane of the caecal wall, indicating extension outward. Case 2.



PLATE III. FIG. 3.
Subserosa from same section much thickened and containing tubercles which again spread laterally. Case 2.



PLATE IV. FIG. 1.
Very low power. Section from Case 1. Necrosis and deep ulceration of mucosa.



PLATE IV. FIG. 2.
Medium power. Section from Case 2 showing tubercles undergoing retrograde change. Round cells have largely disappeared, giant cells are shrunken and nuclei are fewer. Fibroblasts numerous.



PLATE IV. FIG. 3.
Section from near ileo-caecal junction of specimen from Case 2. Mucosa largely destroyed and replaced by connective tissue. Surface covered by slough. Very few tubercles in deeper layers, which show marked fibrosis. Considerable polynuclear infiltration persists.

After the development of a palpable tumor which does not disappear with the subsidence of the pain, in a person below the cancerous age, a tuberculous process must always be thought of, and if the tumor is movable, the caecum rather than the mesenteric glands obviously would be its most probable location. Elevation of temperature and a high leucocyte count are usually wanting, whereas they may be expected in the ordinary inflammation of the appendix.

After middle life, in the cancerous age, it is probably impossible to distinguish beforehand between tuberculosis and cancer in the presence of a mobile tumor of the caecum with symptoms of increasing obstruction,—in fact, in the case of the man 71 years old, after viewing the tumor *in situ* and inspecting its gross appearances on section after removal, we still believed that it was malignant. It required the microscopical examination to convince us of our error.

On the other hand, in a case of tumor of the caecum recently operated on, the appearance of a necrotic area in the substance of the tumor led us to a diagnosis of tuberculosis, which had later to be changed to cancer by the findings of the microscope.

The main thing after all, and perhaps the only thing that we should insist upon, is that in all cases of mobile tumor in the caecal region, we should keep ever in mind the possibility of its tuberculous character, and should always be prepared to deal with such a tumor if it should be found.

This brings us to the question of treatment, which is more simple. The only treatment is surgical, and the choice of operation lies between ileo-colostomy with or without exclusion, and complete resection.

Wiener makes a strong plea for ileo-colostomy and quotes the statistics of previous operators as indicating a much lower mortality than obtains in resection and his own cases as illustrating the completeness of recovery and disappearance of the tumor after the lesser procedure. We have not had the opportunity to examine all these reported cases in detail, so as to distinguish between the results in the ulcerative and the hypertrophic forms of the disease.

Several of Wiener's cases seemed to have been more of the former than of the latter type,—i. e., were surrounded by much exudate with adhesions to the pelvis and to the omentum, and to other intestinal coils. Obviously in such cases excision is difficult, involves much rough handling of the gut, and is more dangerous than exclusion. Excision should be reserved for the purely hypertrophic cases, in which the caecum is mobile and there are ordinarily no adhesions.

In summarizing the results of 229 operations reported in the literature, Hartmann records 31 cases of resection with side to side anastomosis, with 26 recoveries and 5 deaths, and 29 cases of ileo-colostomies with 25 recoveries and 4 deaths—a difference that is practically negligible;

he reports 6 consecutively successful cases of his own, since 1900, and says that "in the hyperplastic forms of caecal tuberculosis I advise resection." We prefer to follow Hartmann rather than Wiener in this form of the disease.

It cannot but detract somewhat from the completeness and permanency of the result to leave the disabled and diseased gut behind. It is necessary to do this when the tumor is fixed, when pus is present, and when the patient's general condition demands quick action with as little manipulation as possible.

In other cases—and this should include almost all of the hypertrophic type—the radical operation is much more thorough, not difficult, and attended by excellent results. This portion of the intestinal tract is especially tolerant of excision; four recent resections—and they are all that have been done within the last 3 years—have been uniformly satisfactory.

In our opinion, in the uncomplicated cases of hypertrophic ileo-caecal tuberculosis, resection should be the operation of choice, and if the patient is in good condition a primary resection with lateral anastomosis is certainly much easier, requires less exposure of the abdominal contents and less manipulation than a two-stage operation.

DISCUSSION.

DR. G. W. W. BREWSTER: Dr. Gage's paper on ileo-caecal tuberculosis is an important addition to the literature of this disease. There are very few articles in English, and we are fortunate in having the subject presented to us in such a comprehensive manner. That this lesion occurs with considerable frequency shows the importance of discussing the best methods of its surgical treatment. I have nothing to add to what Dr. Gage has to say about the treatment, and agree entirely with the views which he has expressed.

In looking over the records of the Massachusetts General Hospital for the last thirteen years, under the diagnosis of intestinal tuberculosis I found eighty-three cases. Of these eighty-three cases the histories showed that twelve could be classed as ileo-caecal tuberculosis. There may have been others, but I have selected only the ones in which the histories were definite. Of these twelve cases, seven occurred in young people between the ages of twenty to thirty, five cases between the ages of fifty and sixty. In four cases the pre-operative diagnosis of chronic appendicitis was made. In the five cases between fifty and sixty years of age, three were diagnosed as malignant disease. In all cases a mass was felt in the caecal region before operation. There were no operative deaths. The subsequent histories of the cases have not been obtained.

Ileo-colostomy was performed in eight cases, and, in addition, in two of these eight cases a radical excision was also performed. In three of the cases simple removal of glands for diagnosis was done, and the cases were presumably inoperable. In one case the record shows that the appendix alone was removed, and proved to be tubercular. I refer to these cases simply to show that the disease occurs with considerable frequency; no careful study was made of the individual cases.

I believe that this is an important surgical le-

sion, and I feel that Dr. Gage has treated the subject in such a way as to give us definite information as to the best treatment.



RIGHT COLECTOMY, WITH SPECIAL REFERENCE TO THE END RESULTS OF A SERIES OF TWELVE CASES.

BY PEER P. JOHNSON, M.D., F.A.C.S.,
PEVERLY, MASS.

THERE exists a great diversity of opinion as to the advisability of operative procedures for the relief of intestinal stasis and its concomitant toxemia depending upon functional disturbances of the colon. This is due in part to the fact that the end results obtained, in this country at least, by Lane's operations, total colectomy and ileo-sigmoidostomy, leave much to be desired. Crippling post-operative adhesions, requiring secondary operations, are quite apt to occur after total colectomy. I have had no experience with this operation, but Clark¹, reporting a series of twelve cases, concluded that in only six of them could the result be considered as entirely satisfactory. Three of these patients required re-operation for obstructive symptoms, and one of these died.

Lane himself appears to have discarded his original ileo-sigmoidostomy except in cases of necessity. My own experience with this operation has been limited to three cases. It was done once for an inoperable carcinoma of the cecum and upper sigmoid, and twice for obstinate constipation associated with multiple adhesions. Both of these latter cases had been subjected to many operations and one had had a resection as well of five feet of the small intestine. X-ray examination with the opaque meal showed in all three its passage to the cecum. One of these patients has four to six movements daily and the constant presence of a large doughy mass in the ceco-colon; another has nine to thirteen movements daily; while the third patient (carcinoma) has been lost sight of. There was an undoubtedly improvement over the original condition, but the results could not be considered as entirely satisfactory. I should under no circumstances consider the operation except as one of necessity.

As being less extreme, colo-colostomy and ceco-sigmoidostomy have been suggested as a means of overcoming stasis. These are mentioned only to be condemned. They are illogical and absolutely unsatisfactory operations. My experience with these procedures has been limited to three cases. One of these was a colo-colostomy done by myself, and the other two were ceco-sigmoidostomies done by colleagues. Each has been an unqualified failure from the standpoint of relieving the constipation. X-ray

examination in two cases showed that the barium was traversing the colon by the normal route instead of passing by the artificial stoma, and at fifty hours there was still marked ceco-colonic stasis. In fact, the stasis was no less than that shown previous to operation. The third case showed, after ceco-sigmoidostomy done for inoperable carcinoma of sigmoid, great distention of the colon and the presence of a fecal mass in the left lower quadrant. These conditions were relieved by a left colostomy.

Occupying a middle ground is right colectomy, by which is meant the removal of the terminal five or six inches of the ileum, the cecocolon, and the first few inches or more of the transverse colon. This operation appears to be followed by less unpleasant post-operative sequelae than total colectomy or ileo-sigmoidostomy, and to be fully as satisfactory in relieving stasis. It removes the most common site of stasis and the most important surface from which the toxic substances are absorbed. Bloodgood² appears to have been the first to establish its value for conditions which he first described as chronic gastro-mesenteric ileus, and later as chronic dilatation of the duodenum. It seems to serve the purpose equally well in stasis in any part of the colon, provided it is not dependent on adhesions or organic disease. I have been greatly impressed with the striking benefits obtained from this operation in properly selected cases, and the absence of unpleasant end-results traceable to the operation itself. Quite naturally, only such cases as have failed of relief by simpler measures are considered suitable for operation, and these simpler measures have con-

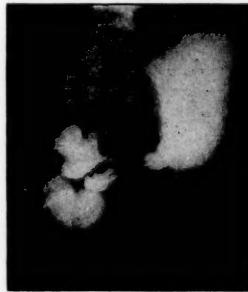


FIG. 1.—No. 6040. X-ray plate showing dilatation of duodenum.

sisted of proper abdominal support, exercises, regulation of diet, administration of suitable cathartics, intestinal antiseptics, lactic acid bacilli, colonic lavage, etc. On the whole, these patients are a most wretched class, going from doctor to doctor, hospital to hospital, and through operation after operation, seeking a relief which they almost never get. They are either considered neurasthenics and treated as such, or, when believed to have organic disease, the

wrong organ is deemed to be the source of trouble, and they are subjected to needless gastro-jejunostomies, appendectomies, oophorectomies or hysteropexies.

A brief summary of the indications for operation and the end-results in a series of twelve

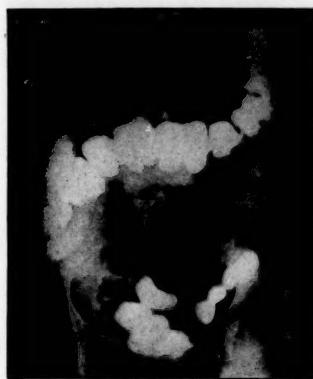


FIG. 2.—No. 6040. X-ray plate showing 96-hour stasis.

cases of right colectomy is submitted for your consideration. Three of these are of little interest because the indication for operation was organic disease, but they are included in order to consider the effect of the removal of the right colon on the bowel function and general health. One patient had an incarcerated umbilical hernia, consisting of right colon and terminal ileum with necrosis of the cecum, and two others had malignant disease of the ceco-colon. One of these had previously been operated upon and abandoned as hopeless. He is now, eleven months after operation, well and working as a street laborer. The other died of extension of the disease in the tenth week.

The remaining nine had symptoms assumed to be due to disturbances of colonic function. One patient had a chronic arthritis of two years' duration, becoming progressively worse, crippling her and confining her to bed. The right colon alone appeared to be at fault and was removed, and at the same time the gall-bladder, which appeared slightly thickened, was drained. Cultures from it, however, were negative. Clinically the relief was striking. There was immediate cessation of symptoms, and now, twenty-three months after operation, she is able to walk and use her hands for fine needlework, although the x-ray suggests some extension of the hypertrophic process.

The second patient had had for some ten years frequent bowel movements, often as high as twenty-five to thirty a day. He was a sallow man, thirty-four years of age, who, up to his present illness, had always been constipated, and especially so during his college life, although an athlete of promi-

nence. After graduating he commenced to have alternating attacks of diarrhea and constipation, ending finally in the persistent, urgent diarrhea. In spite of prolonged investigation and treatment, including an exploratory laparotomy and an appendectomy, he has grown progressively worse. An x-ray examination by Dr. George showed twenty-four hour ileal and cecal stasis, with what appeared to be constrictions in the terminal ileum, cecum



FIG. 3.—No. 6040. X-ray after right colectomy, 11 hours after barium meal, showing ileum empty.

and ascending colon. The history suggested that the primary constipation had been the etiological factor, and the x-ray seemed to confirm the belief that the seat of the trouble lay in the ileo-cecal region. At operation there were no adhesions or constrictions, but there was marked mobility of the ceco-colon, with thickening and injection of this portion of the bowel well around to the transverse colon; the terminal ileum was also thickened and the ileo-cecal valve admitted two fingers. In addition there was a very vascular peritoneal membrane, enlarged retroperitoneal glands, and dilatation of the duodenum. The terminal ileum and right colon to what appeared to be normal transverse colon were removed. On opening the bowel, it was found thickened, injected, and filled with a foul-smelling dark liquid. A few small flat ulcers were found in the cecum, but owing to the contraction of the bowel it did not become apparent until some time later that it was studded with them clear to the line of amputation, suggesting that not all of the diseased tissue had been removed. The pathological report was stercoal ulcers. Later a colostomy was done to facilitate irrigation. Under irrigation the movements dropped to seven, and in two weeks, to four a day. They continued at about that average for several months, but after his return to his work they increased to nine daily. A proctoscopy, done three months after operation, showed a practically normal mucosa where it had previously been deeply injected and, at the recto-sigmoidal juncture, a small flat healing ulcer. He reports, seven months after operation, a gain of fourteen pounds in weight, marked improvement in appearance and strength, and less nervousness.

It is possible that the operation was ill advised. Further time will be needed to determine its full value. Opinions obtained from many prominent surgeons as to the proper treatment varied greatly and none was particularly hope-

ful. Cecostomy seemed inadequate, and ileostomy was objected to by the patient. However, the excellent results obtained by Lynch⁸ and his associates in somewhat similar cases, suggest this to be, perhaps, the more logical procedure, although I felt at the time that it would not remove the seat of the disease.

The other seven patients had symptoms which *appeared* primarily to be of gastric origin. Five had intermittent attacks of epigastric pain, persistent nausea and vomiting, and constipation, associated with marked failure in general health, headaches, nervousness, faintness, and often dizziness. One of these had a mental depression with suicidal tendencies. A sixth did not vomit often, and the epigastric pain made its appearance in two or three hours instead of immediately after eating, and at operation flat, non-indurated ulcers were found. The seventh did not vomit, but presented the other symptoms, and in addition a persistent crippling right-sided pain. None of these was entirely well between attacks, but all were easily fatigued, subject to nervousness and epigastric discomfort due to flatulence. With two exceptions, all were constipated. One had normally five or six movements a day, and the other thought the bowels moved at least once a day but more often five or six times; the movements were then apt to be small, liquid, and to contain hard lumps. That the bowels are now normal in one case and require mild catharsis in the other after a right colectomy rather confirms the belief that the frequency was due to stasis.

Of these seven, six were females and one male. The average age at which symptoms had begun to be more or less persistent was twenty-one, and the average duration of the illness at the time a



FIG. 4.—No. 6040. X-ray after right colectomy taken 24 hours after barium meal.

right colectomy was done was seven years. Five had had previous operations, four of them elsewhere. One had been operated upon twice and another four times; this latter had had an appendectomy, a laparotomy for adhesions, a vaginal repair, and finally a gastro-jejunostomy for a supposed duodenal ulcer. Neither the his-

tory, x-ray or later operative findings gave any evidence of ulcer.

Owing to the fact that these patients between their attacks often have a voracious appetite with sensation of faintness between meals, it is frequently assumed that the symptoms are due to an ulcer. Gastric analysis in five instances showed sub-acidity four times and within normal limits once. More frequently still, however, is the gastric disturbance supposed to be a reflex indigestion due to a chronic appendicitis. And what bears color to this belief is the fact that there is often tenderness and pain over the appendix, and at operation it may be in a state of chronic inflammation. Four of these seven patients had had their appendices removed, but their symptoms persisted.

The history of the first colectomy in this group brings out so clearly the major symptoms that it seems worth while to give it in brief:

Miss I. M., Scotch nursemaid, twenty-three years of age, entered the Beverly Hospital June 11, 1913, complaining of epigastric distress, persistent nausea, vomiting, loss of strength and obstinate constipation. Her symptoms had begun six years before in Scotland, first with obstinate constipation, followed later by epigastric distress and vomiting. She was thought to have an ulcer of the stomach. The symptoms persisted in intermittent attacks for three years, followed for two years after coming to this country by comparative health. After this there were three attacks lasting from six to nine weeks each. Between these attacks the health was only fair, and there were headaches, indigestion and constipation. The attack for which she sought relief had commenced in February, 1913, and had persisted, with but little respite, up to the time of her entrance to the hospital in June. The distress and vomiting came on immediately after eating and often continued for several hours. The vomitus consisted of food or dark brown liquid, and vomiting alone gave relief. The appetite was poor; the bowels constipated, never moving without medicine. There was loss in weight of ten pounds, weakness, headaches, faintness, and at times dizziness. She had been in bed for a long time, the conditions being considered secondary to ptosis and constipation. Examination of the stomach contents showed sub-acidity, while the x-ray showed ptosis of stomach and colon, cecal stasis, and the appendix. As she failed to improve, an exploratory operation was done on July 6, 1913. Conditions were found confirmatory of the x-ray: the appendix was thickened and contained concretions; practically all of the small intestines, transverse colon and a cecum mobile occupied the pelvis; the ascending colon and first portion of the transverse colon were held together by Jackson's membrane; the duodenum was dilated to the mesenteric root which was drawn very tightly across it; the terminal ileum had a very short mesentery, and the stomach was atonic and dilated. The operation consisted of an appendectomy and freeing of Jackson's membrane.

She was discharged August 7, 1913, with a proper fitting abdominal support. In spite of a long rest, diet, exercise to develop muscles and increase the capacity of her upper abdomen, her symptoms soon reappeared and she returned to the hospital on March 5, 1914. As I had been impressed with the

similarity of her symptoms to those which Bloodgood has described under the caption of chronic dilatation of the duodenum, I communicated with him. On his advice I did a right colectomy, verifying his observation that downward traction on a mobile cecum in the presence of a short mesentery to the terminal ileum produces constriction of the duodenum where the mesenteric root crosses it. Coincident with this traction there was blanching of the face, a marked softening of the pulse, and a drop of 10 m.m. in blood pressure. The relief which followed the operation indicated that the symptoms were undoubtedly due to the intestinal stasis, ptosis, and secondary dilatation of the duodenum. After convalescence she returned to her work and has remained well since. The bowels move once daily.

The x-ray in every instance showed colonic stasis, and the principal and most striking operative finding was a marked mobility of the



FIG. 5.—No. 6040. X-ray after right colectomy. Barium enema. No reflux of barium into ileum.

ceco-colon. In each case it could be brought well out of the wound and twice for seven or eight inches. Once there was found an embryonic condition of the colon, *i.e.* failure of rotation. Four times there was marked dilatation of the duodenum clear to the mesenteric root, and twice it was recorded as being much larger than the colon. Five times the presence of large amounts of feces in the cecum was noted. In practically every case there was marked enlargement of the retroperitoneal glands and also the so-called Jackson's membrane which, however, seemed to be more often supportive than obstructive.

Of these seven patients, five have been operated on two years or more, one about ten weeks and the other six. These last two are, perhaps, too recent for a consideration of their permanent end-result, although there is marked improvement in appearance and general health with a cessation of their distressing symptoms. In the first, the relief from mental depression and an intractable vomiting of two months' duration was almost magical.

The remaining five patients are now all able to be at their work and, with one exception, consider themselves entirely relieved of their symptoms and in every way improved in health. The one exception was the patient in whom non-indurated gastric ulcers were excised but a gastro-jejunostomy not done. She, although very much improved in health, still complains of periods of epigastric discomfort similar to those previous to operation, and seen during an attack the gastric analysis showed retention and sub-acidity, while the x-ray showed twenty-four hour gastric stasis.

It is interesting to note the effect of this operation on the function of the bowels. Of the twelve patients operated on, one with malignancy died in the tenth week, and definite knowledge of the patient with the umbilical hernia cannot be obtained, although she is known to be in good health and at her work as a domestic nurse. This leaves ten cases to be considered. One patient with carcinoma of the cecum reported normal movement before operation and the same condition after. Of the six who had obstinate constipation, three report one natural movement a day, and one sometimes two; one occasionally requires mild cathartics, and another takes cathartics each night for fear of constipation. Of the three who had more than one movement a day—two reporting five or six, and the third twenty-five or thirty—the first now has one natural movement a day; the second requires mild cathartics; while the third, though very markedly benefited for the first few months, now has eight or nine. Summed up then, six have one and at the most two normal movements daily, while one occasionally, and two habitually, require mild cathartics, and one has eight or nine where he had previously had as high as twenty-five or thirty. Improvement then in bowel function followed the right colectomy in every case, and there is no evidence that it has had any but a beneficent effect on the general health.

In a post-operative x-ray study of nine cases made for the purpose of determining whether the absence of an ileocecal valve had any effect on the emptying of the small bowel, it was found that in no case was there any damming back in the ileum or any evidence of dilatation of this portion of the bowel. In all cases where there was no gastric stasis, the ileum was empty by ten and a half hours, and at this time, in practically every case, the head of the meal was in the pelvic colon, even in those patients who were constipated. After this time there was apparent slowing of the current, as though the meal were being retained in the transverse colon for absorption. Inasmuch as the emptying time of the ileum is as quick as normal, and the bowel movements are normal in consistency or slightly constipated, it would seem that the remaining colon must have the properties of absorption as well as storage, and that the lack of an ileocecal valve was of no importance. In making

these investigations a great many examinations were made at close intervals after the ileum was found to be empty, in order that we might be sure that there was no reflux into it. For her invaluable assistance in carrying out this work, I am greatly indebted to Dr. Isabel Bogan.

The operation consisted of the removal of the last few inches of the ileum, ceco-colon, and about a third of the transverse colon. In my earliest cases I did not remove as much of the transverse colon as I did later, and post-operative x-ray examination shows redundancy and ptosis of this portion of the colon, although the functional result is perfect. An ileostomy in a malignant case was done once and an ileocolostomy with suture eleven times, four times by lateral and seven by termino-lateral anastomosis. Authorities seem about equally divided between the lateral and the termino-lateral method. C. H. Mayo⁴ prefers the latter, made with the Murphy button, which undoubtedly has the advantage of shortening the operation and perhaps eliminating some of the dangers of sepsis. I have never used it. Pouching of the blind end of the ileum is the principal disadvantage of the lateral method. X-ray examination in two of these cases showed that the barium promptly left the ileum except for an area close to the transverse colon, which was persisting at twenty-four hours in one instance and forty-eight hours in the other. In an ileo-sigmoidostomy, performed by the lateral method, an ileal pouch three inches in length had formed seven months after operation.

In one case only, and then for fear of kinking, was the stump of the colon fastened to the anterior abdominal wall. So far, at least, no symptoms have arisen which suggest that failure to do this was unwise, although for the future I should be inclined to follow Mayo's method of attaching the stump into the upper angle of the wound. This he does so that it may be opened to allow the escape of gas if stasis and distention occur. Moreover, this fixation would seem to have the additional advantage of suspending the transverse colon between this point and the splenic flexure and so prevent ptosis.

Although none of these patients could be classed as good surgical risks, there were no operative deaths. In nine cases there was kept an operative chart recording the blood pressure every ten minutes and the pulse every five. In four instances there was a rather sharp drop in blood pressure which was, however, in two cases overcome during operation. The two showing marked shock were malignant cases. The five remaining charts showed an undisturbed course throughout, nor was the post-operative convalescence more serious than after the average major operation.

We have then in right colectomy an operation which can be performed with a low mortality and which offers relief to those sufferers from intestinal stasis without imposing upon them any dangers of unpleasant end-results. The

general health was in every way improved in the so-called functional cases of this series. The bowel function was in every way bettered; where constipation continued it was slight, when before it was intractable; where there had previously been diarrhea, it was entirely remedied or markedly benefited.

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DISCUSSION.

DR. JOHN T. BOTTOMLEY: Dr. Johnson's paper is most interesting, and it brings into the field of intestinal surgery some unusual features. I shall confine my remarks to two phases of the subject: first, right colectomy in its relation to the treatment of chronic arthritis and, second, right colectomy and other operative procedures in relation to treatment in a certain number of cases which we formerly classified loosely under the head "chronic appendicitis."

From the technical point of view two points in the doing of colectomy are worthy of emphasis. The posterior peritoneum should be incised to the outer side of the cecum and ascending colon, and these portions of the large intestine widely and thoroughly freed and mobilized. This procedure is essential to ease of operation. In colectomy for non-malignant conditions, the line of section through the mesentery can be carried close to the intestine; however, in the presence of malignant disease, the fact that the glands, too, must be removed forces us into the doing of a wide resection. In many patients the ileo-colic artery is easily seen running in the mesentery, and its ligation a short distance from the point of origin makes a relatively bloodless operation of right colectomy, and at the same time permits of a wide and relatively easy removal of possibly affected glands.

I have been particularly interested in the effect of such procedures as right colectomy and ileo-sigmoidostomy on cases of chronic arthritis. Such experience as I have gained from eleven cases leaves my mind in a state of doubt as to the curative value of such procedures. Of the eleven cases but one is truly cured, and the young man remains cured over three years after ileo-sigmoidostomy, despite the fact that even now roentgenoscopy shows that there is a marked iliac stasis. Yet within a few weeks I have done a right colectomy for a similar chronic arthritis, have seen the patient gain almost miraculously for a week, only to see her three weeks later practically as crippled as ever. What change did we bring about in her and how did we accomplish this change that caused so great and so immediate an improvement in this girl for the time being, and that so quickly suspended its favorable action? I do not know.

It is only fair to state that all cases we have operated on have shown speedy relief from their toxic symptoms. The malaise, the sensitiveness of the joints, the sweats, the cold, clammy hands have disappeared quickly and in many cases permanently, even when the joint-motion has remained uninfluenced.

What shall we do for that type of case which shows a symptom-complex formerly regarded as chronic appendicitis and which, when operated on, shows no evidence of appendiceal inflammation? Are we justified in employing here so radical a procedure as right colectomy? I must say that I am not convinced that we are. Many of these cases are improved or cured by other than operative means; in others I have removed the appendix and plicated the cecum, thus lessening its size. With such a colon as Dr. Johnson describes, i.e., one loose, flabby and loaded with hard fecal masses (after the usual measures for emptying bowels had been employed), I should be inclined to do a right colectomy.

I want to say a word of warning with regard to two-stage operations in malignant or tuberculous disease in the ileo-cecal region. If you do at the first stage an anastomosis of the ileum to the transverse colon, be prepared to meet in the second stage (removal of the growth), a task rendered very difficult by numerous widespread adhesions.

THE ADVANTAGES OF CONSERVATIVE SURGERY IN OPERATIONS FOR DIVERTICULITIS OF THE DESCENDING AND PELVIC COLON.

BY JOHN W. KEEFE, M.D., LL.D., F.A.C.S., PROVIDENCE, R. I.

ALTHOUGH numerous causes have been assigned and various theories formed, in an effort to explain the etiology of acquired or false diverticula of the descending and pelvic colon, there exists, at present, no unanimity of opinion in this matter, and the various theories proposed have been substantiated by neither clinical nor experimental evidence.

This condition of affairs results primarily from the fact that, until recently, diverticula of the intestine were looked upon as pathological curiosities, and their clinical and surgical import either not realized or insufficiently appreciated. Virchow, thirty years ago, referred to diverticula, as an "unusual pathological condition," but, during these thirty years, our views have changed in regard to this subject, and our knowledge of it has progressively increased.

Many conflicting opinions are held in regard to the etiology of this disease. We have Klebs' statement that it results from traction exerted on the bowel by the mesentery, and the opposite view of Hansemann that pulsion within the bowel is the primary cause. As a further instance of the existing diversity of opinion, Klebs' statement may be mentioned, that the condition occurs in fat people, while Hansemann seems to lay emphasis on the fact that most of his subjects were lean.

Although the consensus of opinion seems to be that diverticula occur in middle life, nevertheless, there are a few cases recorded occurring at the ages of three and seven years.

This conclusion in regard to the subject, which has proved not only of great scientific interest, but also of considerable practical importance, is doubtless due to the fact that deductions have been made and theories have been based on post-mortem experiments on the intestine, and analogies have been made which were not justified, and premises assumed which were untenable.

Heschl, Hanau, and Good, by filling the intestine of cadavers with water, under pressure, found that the point at which rupture usually occurred was at the mesenteric border, and since this apparently was the weakest part of the intestine, they assumed that this *locus minoris resistentiae* constituted an etiological factor in the production of diverticula.

Hansemann, with similar experiments, confirmed these deductions and, going a step further, produced artificially in the intestine of old people, false diverticula, along the sheaths of the veins.

The inadequacy of the theory, advocated by these investigators, is manifest when we consider that it does not explain the occurrence of diverticula opposite the mesenteric border.

We must bear in mind that errors are common when we apply to the living subjects conclusions based on post-mortem experiments.

Klebs' theory of traction on the mesentery being a causative factor is hardly tenable, inasmuch as it fails to explain the occurrence of diverticula on the side opposite the mesentery.

It can be demonstrated that the mesenteric border is not the weakest part of the bowel. When distended artificially during life, rupture takes place opposite the mesentery. Intramesenteric ruptures, if they do occur at all, are rare.

With ileus of the intestine, we find that the peritoneum and underlying muscle layers tear and separate, not at the mesentery, but generally more or less opposite the mesenteric attachment. The theory, advocated by some observers, that the sheaths of veins constitute a weak point and are, therefore, a factor favoring the development of diverticula, is conceded to be correct to the extent that, on the mesenteric side of the gut, they constitute a path of least resistance along which a diverticulum is likely to develop.

Beer, who has thoroughly studied the subject experimentally and clinically, after numerous experiments and an exhaustive study of the literature, arrives at the conclusion that the primary factor in the development of the diverticulum is a muscular deficiency in the intestinal wall; traction of the gut by the mesentery and intra-intestinal pressure due to the accumulation of gas and feces, incident to constipation, being secondary factors. This theory is in consonance with the results of all approved experimental investigation and clinical observation.

While cases of intestinal diverticula may occur without manifesting any symptoms, it is a fact based on statistics that 60% of all cases eventually have symptoms.

The symptomatology of this condition is gen-

erally definite and characteristic, and failure to recognize it is due, not so much to the absence of well-defined symptoms, but to the fact that the subject is one, the surgical significance of which is not duly appreciated by the medical profession.

This state of affairs no doubt is due to the scarcity of contributions of a practical nature on this subject, in medical journals, and the absence of even reference to it in some of the recent text-books.

It may be said in general that the symptoms are those of appendicitis, with the exception that they are localized on the left side instead of on the right. There is generally a chill and a rise in temperature, with a leucocytosis; pain, usually of sudden onset, and definitely localized in the left lower quadrant; tenderness on pressure; muscular spasm; and a sense of resistance or a palpable mass to be felt in this region.

Vesical tenesmus and frequency of micturition occasionally occur. These symptoms, suggestive of acute inflammation, may subside in a few days, but are usually followed by recurrent attacks.

While generally the diagnosis of diverticulitis can be made with a fair degree of accuracy by those conversant with the subject, it is at times extremely difficult to differentiate it from carcinoma, pelvic peritonitis, tuberculous and tubercular growths, and left-sided appendicitis. The rarity of the latter condition, and the fact that it can be excluded absolutely by determining the position of the cecum by a roentgenological examination, and the exclusion of the other possibilities by careful physical examination and by appropriate tests, reduce the possibilities to two, namely, diverticulitis and carcinoma.

Many non-malignant tumors, the result of pathological processes originating in an infection of a diverticulum, have been mistaken for carcinoma, and the frequency of this error is to be explained by the fact that the location of these tumors of the descending and pelvic colon, and the period of life in which they generally occur, the so-called cancerous period, naturally suggest a malignant growth.

In many instances, not until the tissue has been submitted to a pathological examination, has the diagnosis of diverticulitis been made. Cases diagnosed as carcinoma, in which colostomy had been performed as a palliative measure, and which lived far beyond the period which the supposed diagnosis warranted, were, no doubt, cases of diverticulitis.

In a series of twenty-seven cases, with a mass in the large intestine, and all occurring in the "cancerous period," 74% proved to be cases of diverticulitis. The masses were found to be inflammatory tissue with diverticula in the colon. From these facts two valuable lessons may be learned: first, in exploratory laparotomies, scrupulous care should be exercised by the surgeon in handling the large intestine, especially

the sigmoid, on account of the danger of rupture of an abscess in cases of frail diverticular walls, due to pressure; secondly, it is hazardous to give a definite diagnosis and prognosis without a pathological report.

In the differentiation of diverticulitis from carcinoma, a proctoscopic examination is of no value, except in the rare cases in which intussusception has occurred into the rectum.

The presence of blood in the stools is an important diagnostic sign in favor of the diagnosis of carcinoma, while its absence warrants a suspicion of diverticulitis.

The greatest aid in differentiating between these two conditions, however, is afforded by roentgenology.

In cases in which a diverticulum is present, the findings after an opaque meal has been given, are as follows: small rounded shadows are seen in the affected areas, these being the residue of the opaque salts retained in the diverticulum. This filling defect resembles very much that occurring in cases of carcinoma.

The identifying feature is the fact that, in the case of diverticula the shadows always appear in groups, and constantly maintain the same relation to each other, which is not the case when carcinoma is present.

They are best seen on the second or third day, and generally show to better advantage after a barium enema has been given.

Ureteral stones, phleboliths, and calcified glands produce shadows almost indistinguishable from those of barium-filled diverticula. These shadows, however, can be differentiated in the following way: during a screen examination, palpate over the mass and, if a diverticulum be present, the barium-filled area will move with the bowel, which, of course, is not the case with ureteral stones, phleboliths, or calcified glands.

This method of differentiation is applicable only in cases in which the upper sigmoid is involved, inasmuch as the lower sigmoid cannot be shifted by palpation. In the latter case, it is necessary to make a plate or screen examination before the enema is given. The antero-posterior view is usually the best on account of the frequency with which diverticula occur at the mesenteric border of the bowel, but as there is considerable variation in the site of their occurrence, it is well to resort to stereoscopic roentgenograms and to make screen and plate examinations at various angles of observation. The liquid enema, introduced under some pressure, has been found to be more satisfactory than the opaque meal, since it is more likely to fill the diverticulum, while the opaque meal usually scatters more or less through the bowel.

In a general way it may be said that the success or failure of an x-ray examination, in a case of diverticulitis, depends on two factors: first, whether or not the diverticulum is filled with a fecal concretion which might preclude the possibility of the entrance of the barium; and second, whether or not the inlet to the

diverticulum is stenosed, since cases have occurred in which stenosis had progressed to such a degree that the liquid enema was prevented from entering.

While it is true that a diverticulum may be present giving rise to no pathogenesis, yet in 60% of cases infection does take place through these intestinal diverticula, and complications of a grave nature frequently arise, and may terminate fatally.

The most constant finding is that of a chronic extramucosal inflammation, which frequently results in tumor formation which is mistaken for carcinoma.

Peritonitis results from perforation of a diverticulum, the walls of which have become thinned out from pressure and ulcerated by the presence of fecal concretions, with attendant bacterial invasion.

Acute or gangrenous inflammation of a diverticulum occurs, frequently resulting in an abscess, which may remain localized or may rupture into the general peritoneal cavity, intestine or bladder. This condition is made manifest by fulminating symptoms of peritonitis. We may also have a retro-peritoneal abscess or an abscess may rupture between the mesenteric folds, and several cases are recorded in which an abscess extended even to the liver and the left kidney.

Another serious condition to be borne in mind is the possibility of adhesions of the inflammatory mass to adjacent structures, with the attendant danger of intestinal obstruction. Fistulae and fistulous tracts between the diverticulum and some viscera are of rather frequent occurrence. Fistulae between the bowel and the bladder are the most common.

As one of the more unusual complications, may be mentioned chronic mesenteritis, resulting in thickening and kinks, a possible cause of volvulus. As one of the very rare sequelae, it is interesting to report one case of metastatic suppuration in the liver, resulting from a diverticulitis. Finally, it must be remembered that a diverticulum may undergo malignant, degenerative changes resulting in carcinoma.

After considering the pathology of diverticulitis, remembering the extensive and grave complications which usually follow, one must admit that few conditions demand greater nicety of judgment, greater skill, and more conservatism than the surgical condition resulting from the infection of a diverticulum.

Time and time again, in fact, unfortunately too often, it has been demonstrated that diverticulitis, with its serious complications, is not a case for extensive, brilliant and radical operation, but is one in which conservatism is the better course to pursue.

The questions which confront the surgeon are: shall we resect the diseased intestine, or shall we perform a colostomy above the diseased area, thus allowing the inflammation to subside;

and if we select the former, what method of procedure shall we adopt?

Shall we content ourselves with opening and draining an abscess resulting from diverticulitis, or shall we attempt to remove the diverticulum? And another difficult question that arises is, how shall we proceed when there is present a fistula between the colon and the bladder?

The surgical procedures which will be found applicable in the largest number of cases are as follows: through a left rectus or muscle splitting incision in the left iliac region, the left lower quadrant is explored, and if an abscess is found it is drained. Although some surgeons advise the removal of the diverticulum coincidently with the draining of the abscess, the more conservative plan of deferring this to a subsequent time, when a more extensive operation can be undertaken with less hazard to the patient, is to be commended.

The two-stage operation often gives good results. A loop of the bowel containing the affected area is drawn through the abdominal wound, and the walls of the normal bowel above and below this mass are stitched together. The two portions of the bowel below the loop of the intestine withdrawn are then sutured to the parietal peritoneum. About forty-eight hours later the diseased area of the bowel is removed with a cautery, thus completing a colostomy. A secondary operation may be performed at some future time, and the openings in the bowel closed.

In cases of fistula between the bowel and the urinary bladder, the surgeon should first make a careful cystoscopic examination, to determine the size and location of the opening in the bladder. The peritoneal cavity is then opened, the adherent colon and diverticulum separated from the bladder, and the opening in the latter is then closed.

The involved colon may then be resected and an end-to-end or a lateral anastomosis made, but here, too, the more conservative two-stage operation should be the choice in many instances, as it is the less hazardous procedure. As to the relative advantages of lateral compared with an end-to-end anastomosis, the former, when we have sufficient bowel to work with, is preferable on account of the greater tendency in the latter operation to leakage at the mesenteric border, due to the liquefaction of the fat which occurs between the leaves of the mesentery.

SUMMARY.

1. Our knowledge of the origin of intestinal diverticula is meagre, and but little unanimity of opinion exists relative to the etiological rôle played by the several factors mentioned as causes.

2. The symptoms are definite and characteristic, and failure to recognize the condition arises more from a lack of knowledge of it and a

failure adequately to realize its importance, rather than from any inherent difficulty in the diagnosis.

3. Inasmuch as the location of the region involved and the period of life at which the condition occurs are identical with those of malignant growths, the differential diagnosis between these two conditions becomes difficult and is of paramount importance. Other conditions to be differentiated are: left-sided appendicitis, and tuberculous and luetic growths.

4. The x-ray examinations afford a most valuable aid in diagnosis and are of especial value in differentiating between diverticulitis and carcinoma.

5. As a result of infection through intestinal diverticula, grave, and not infrequently fatal, complications arise, namely:

- (a) Chronic extramucosal inflammation, frequently resulting in tumor formation and simulating carcinoma.

- (b) Peritonitis resulting from the perforation of a diverticulum.

- (c) Abscess formation.

- (d) Intestinal obstruction, due to adhesions of the inflammatory mass to contiguous structures.

- (e) Fistulae and fistulous tracts, particularly between intestine and urinary bladder.

- (f) Chronic mesenteritis.

- (g) Metastatic suppuration in the liver.

- (h) Malignant changes resulting in carcinoma.

6. In deciding on the type of operation to be performed in a case of diverticulitis, the one fundamental principle which, to the exclusion of all others, should guide the surgeon, should be that of conservatism. With this serious surgical condition he should aim, not at completeness and a display of surgical technic, attempting to do a brilliant and radical operation with great hazard to the patient; but, rather, should strive to preserve life through the gravest part of the illness, employing such palliative procedures as draining an abscess, performing a colostomy, or adopting, in suitable cases, the two-stage operation.

Statistics from various authorities have shown conclusively that extensive resections of intestine, done in the presence of infection, as is always the case in operations for diverticulitis, are, in a large percentage of cases, fatal.

DISCUSSION.

DR. SAMUEL J. MIXTER: In the old days I used to operate for cancer of the sigmoid, and the patients got well and stayed well. One of the worst nuisances in my life was the patient who got well, stayed well, and then took "cancer cure." They had diverticulitis.

Diagnosis is difficult on the operating table. One can never be sure until the specimen has been examined under the microscope.

The cases of relapsing diverticulitis are seen in

men more often than in women. There are symptoms of more or less obstruction with pain and little temperature, and you can feel resistance or mass. The patients are not very sick. You know they have a diverticulitis. After a good thorough starvation and a large colon irrigation they get well. They may have these attacks frequently or at intervals if they neglect constant lavage. What are you going to do with those people? Are you going to subject them to a colostomy without their consent? I would shoot anybody that did that to me. Or are you going to resect that sigmoid and do one of the most dangerous operations in surgery? If you have to go low it is difficult. What are you going to do with those cases? Perhaps the reader will tell us.

One word about the position of the artificial anus. With an artificial anus, the nearer you can get to the umbilicus, the better you can apply the apparatus; the nearer the umbilicus the better—that is the centre of motion.



RESECTION OF THE DESCENDING COLON AND RECTUM.

BY FRANK H. LAHEY, M.D., BOSTON.

THE principles and practice of resection of the descending colon, including the rectum, have become so well standardized that to do other than speak of certain procedures and emphasize certain others which have proven valuable in my hands would be but a boresome repetition of what, no doubt, have already become well-established methods in your own hands.

The indications for resections of this segment of the intestine, owing to the limited variety of conditions arising at this level, must always necessarily be for but a few pathological lesions, such as malignant growths, carcinoma and sarcoma, errors in development, as Hirschsprung's disease, trauma, the lacerations resulting from direct violence through the abdominal wall and those received through the rectum, the effects resulting from inflammation, diverticulitis, rarely tuberculosis and syphilis, or their resulting strictures, and finally the intussusceptions occasionally occurring at the sigmoid flexure.

Regarding carcinomata (I have had no personal experience with sarcomata), I am less and less enthusiastic about the resections for cases not well within the operative limits prescribed for these cases,—free mobility; by this I mean not only that the growth has not involved neighboring structures, but is so slightly fixed to them that it can be detached without difficulty from them; lack of metastases, and by this I mean, not only that palpable metastases are absent at the time of examination and operation, but that no metastatic foci are demonstrable in any situation upon careful x-ray examination. I am forced to admit that local and metastatic recurrence in these cases has caused me to limit more sharply in my cases the indications for resections and amputations at this level.

I have had occasion to remove the dilated and atrophied descending colon in connection with complete colectomy three times, but have had no experience with Hirschsprung's disease. In this connection I would say that I believe that end-to-end anastomosis of the ileal to the rectal stump is safer and superior to lateral anastomosis because of the strain put upon the blind end of the ileum and the danger of leakage—to say nothing of the proneness to pouch-formation here. In this connection I wish to call attention to the idea of buttressing the ends in lateral anastomosis, as mentioned by Crile, and which, no doubt, many of you already do.



FIG. 1.
Method of buttressing ends in lateral anastomosis.

Little need be said regarding resections for trauma, except that it is undoubtedly true that many traumatic cases would survive that otherwise die, were a temporary colostomy done at the primary operation, with secondary establishment of the fecal current at a later day.

Regarding inflammatory conditions, it is the writer's opinion that either the above procedure, mentioned in connection with trauma, or simple drainage, is by far the safest conduct of that group of cases coming under the head of sigmoiditis, perisigmoiditis, or diverticulitis. I have operated upon six of these cases; four were drained and two were resected, one of the resected cases dying and two of the drained cases dying. Nevertheless, it is my opinion that resection with primary anastomosis is a highly dangerous procedure in this group, because of the danger of spreading what is often a virulent infection, and because of the danger of leakage in a bowel wall in a condition to some degree pathological because of its close association with an infected area.

Mobilization of the splenic flexure is a procedure which is of value in bringing the proximal segment down in anastomosis following resections of considerable extent in the descending

colon or sigmoid, and a procedure of necessity in complete resections of the colon.

The splenic flexure is the most acute angulation of all the flexures within the abdomen, due first to the phreno-colic ligament,—a fold of peritoneum attached at this flexure, and arising from the diaphragm between the tenth and eleventh ribs,—and second, to the fact that the descending colon is not completely covered by peritoneum until it reaches the level of the crest of the ilium. An arrangement is thus made whereby one limb of the angle is fixed, the descending colon and the other limb free, the transverse colon, the angle itself being accentuated by the



FIG. 2.
Illustrating phreno-colic ligament (A), and incision in outer leaf
of peritoneum. (Redrawn from Mayo.)

attachment of the phreno-colic ligament to it; and it is by severing these two practically bloodless attachments that mobilization is accomplished.

The descending colon is easily loosened from its attachment to the abdominal wall by an incision parallel to its long axis through its external fold of peritoneum and close to its outer edge. The bowel may then be wiped inwards, its internal fold containing its blood supply separating easily as far as the median line, if necessary; the bowel may then be put upon the stretch and the phreno-colic ligament cut under direct vision. The severing of the gastro-colic omentum between ligatures now permits of the complete obliteration of this flexure, and the easy approximation of ends before this, widely separated.

Lateral anastomosis is not well suited for this

segment of the intestine, containing, as it does, solid feces, and because of the liability of fecal concretions accumulating in the form of hard and irritating masses in the blind end of the proximal segment.

End-to-end anastomosis is the ideal form of anastomosis, particularly in this portion of the large intestine. Its greatest disadvantage in my hands has been the difficulty of inserting the suture, and the possibility of leakage. Both of these factors are due, in my estimation, to the deposits of fat and the epiploic appendages so common in this segment of the bowel. Without going into the detail of each method of applying sutures, there are three forms of suture applicable in this procedure: the continuous suture of one form or another, some form of interrupted suture, and the telescoping procedure proposed by Gibson. Although dissatisfied with it, I have made use of the continuous suture reinforced with interrupted ones up to recently, when I have returned to the interlocking interrupted suture published by me in the *Annals of Surgery* in January, 1910, the illustrations of which may be seen in Vol. VI of Keen's System of Surgery. The advantage of this suture in this portion of the bowel over continuous and other forms of interrupted suture lies in the fact that each stitch is tied separately and tightly approximates that segment of bowel included in the stitch to the neighboring end, even though a tab of fat or epiploic appendage chance to lie within the grasp of the individual suture; and further, in that each stitch is interlocked through the same stitch-hole, thus allowing no dangerous spaces between two sutures through which leakage can occur. It is this factor in this locality which makes the continuous suture and other forms of interrupted suture so unsatisfactory to me. Because of the danger of constricting the bowel too much, it is impossible to tighten a continuous suture in the descending colon sufficiently so that a leak may not occur if one or more epiploic tabs chance to lie between two bites of the suture. This same element of danger exists with non-interlocking interrupted suture should an epiploic tab in the same way chance to lie, either entirely or in part, in the unstricted space between the sutures.

Should doubt exist concerning the security of the suture line in these anastomoses, an attempt should be made to strengthen the line of anastomosis by some form of reinforcement. If the omentum be sufficiently long, or the anastomosis high enough, a portion of the omentum may be wrapped around the line of suture and fixed to it by interrupted sutures of fine catgut. If this is not possible, either a completely detached strip of omentum may be applied around the suture line or the whole line of suture invaginated into the lower segment, and interrupted sutures of fine catgut applied at intervals around the bowel to retain it in that position.

The technic of resections in the descending colon and sigmoid, provided the procedure of

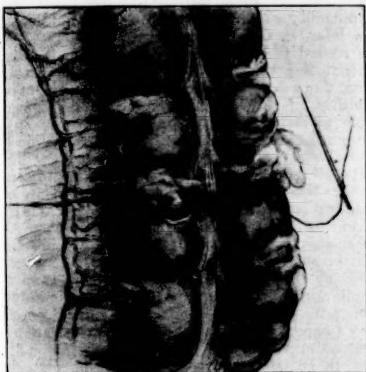


FIG. 3.

Illustrating how the interposition of fat tabs prevents accurate coaptation of serous edges.

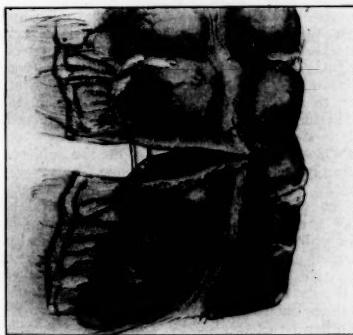


FIG. 4.

Illustrating method of applying interlocking mattress suture of the author. Note that first stitch (A) is not tied, so that the last stitch may be locked into it.

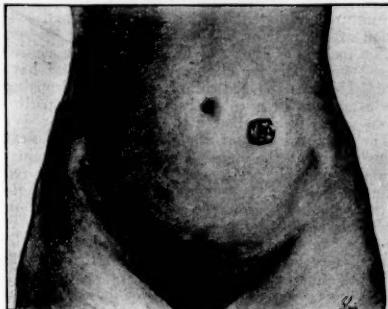


FIG. 5.

Location of artificial anus and redundant colon.

freeing the bowel described above is practised, consists almost entirely in the method of anastomosis already taken up, as, with the outer leaf of peritoneum cut, removal and control of the blood supply becomes comparatively simple. In dealing with the rectum, however, no such unanimity of opinion concerning technic occurs, and one must select from a formidable array of procedures, such as two-stage, abdominal, combined sacral-perineal, and vaginal operations.

In the time allotted it is impossible to enter into the details of each method. It has been my custom to employ the combined operation,—abdominal and sacral,—when possible, because with this operation the liver and remainder of the abdomen may be explored for metastases, thus preventing an extensive operation offering no prospect of cure, because the intra-abdominal extent of the growth may be accurately ascertained, because the control of blood supply and preservation of neighboring structures may be comfortably and safely carried out under direct vision, and because by the rapid performance of a colostomy and closure of the distal stump, the operation may be terminated and continued at a second sitting.

My experience with the Kraske procedure, except as part of the combined operation, has been extremely limited, and I feel that I would reserve it for those patients who are too fat to make the combined operation worth undertaking.

Following two very successful implantations of the upper segment into the skin at the normal

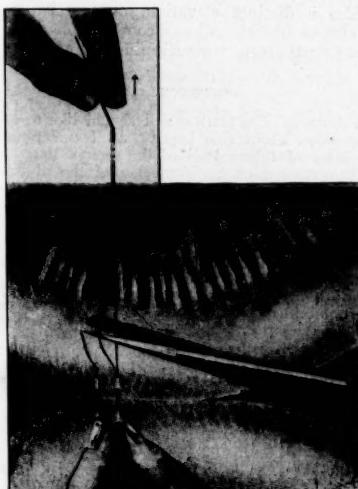


FIG. 6.

Illustrating method of pulling on tail of stitch so that one of the two strands becomes slack, the other remaining taut. The slack strand is always the second limb of the mattress and the one to cut.

site of the anus, I became somewhat enthusiastic about this procedure, but at this time I am inclined to the commonly accepted view that it distinctly increases the danger of local recurrence in those low-lying carcinomata of the rectum to which it would naturally be applied. One case in which the external sphincter was preserved, and by far the more favorable of the two, has had a recurrence locally, and the other, who refused anything but an opening at the normal site, even without a sphincter, has now gone over three years with no recurrence.

Regarding the situation of the artificial anus in these cases, it has been my preference to make a stab wound through the fibres of the rectus to the left of the wound, to insert an Ochsner clamp through it to close it upon the portion of bowel at the level desired, to apply a similar clamp below, and to sever between with a cautery. The clamp is then withdrawn upon the abdomen, a few supporting sutures applied to the edges of the stab wound and bowel, and the clamp opened at a later date.

It has seemed in my cases that an anus here, rather than nearer the anterior superior spine, has been more satisfactory because of the greater ease in keeping an apparatus over the opening, particularly in thin individuals, whose anterior superior spines tend to stand out prominently, making the close application of an inflated ring impossible.

One other step has been of value to me,—that is the pulling of a considerable portion of the colon out onto the abdomen, so that there is a marked pouting at the site of the anus. This provides a distinct elevation, over which the ring may be placed, and to a considerable degree preventing the ring from slipping out of place.

DISCUSSION.

DR. JOHN W. CHURCHMAN: I should like to ask one question about this paper. As I understand these cases of tuberculosis of the cecum, they are usually accompanied by ulceration of the mucous membrane. Nothing was said about whether the stools were examined or not for tubercle bacilli. The examination of the stools for tubercle bacilli is, of course, a difficult matter, but Petroff of Saranac has recently devised a method of cultivating the tubercle bacilli in pure culture from the stools, which has been fairly successful. A medium is used containing gentian violet.

GENERAL DISCUSSION.

DR. LINCOLN DAVIS: Dr. Gage's paper interested me very much. I have had a small experience in this disease. I had one case last summer of resection of cecum and ileo-cecal valve for tuberculosis. When I had completed the operation and was about to close the wound, I found another extensive area of tuberculosis high up in the ileum which I was obliged to leave. This case has shown me the importance of making a thorough search of the whole peritoneal cavity at the start. In this case I was also troubled with caseous lymph nodes, extending up to the root of the mesentery. I at-

tempted to get these out, adding considerably to the difficulty of the operation. I should like to know how Dr. Gage treats these.

In regard to carcinoma of the rectum, that is a tremendous problem. Unfortunately, the cases I see are far advanced. Such cases must accept the disabilities of an artificial anus. It would seem desirable to do a combined operation in one stage, but upon looking up the literature on the subject I found the mortality of such operations very high, about 50%. It seems to me that it is up to somebody to take up the combined operation in one stage, and improve the technic. With an assistant working in the perineum at the same time, perhaps, that the abdominal operation is being done, time might be saved. It is a great advantage to be able to free up the sigmoid and upper rectum from the abdominal side, and then pull the whole mass down through the perineum. I could not catch from Dr. Lahey's paper whether he had done the operation in one stage or two.

DR. R. B. OSOOPOO: In regard to immediate improvement after operation; some time ago in cases of chronic arthritis we tried a simple etherization without any tonsil operation. Etherization had exactly the same immediate effect as far as the joints were concerned. That is possibly the explanation.

DR. J. T. BOTTOMLEY: Any light that may be thrown upon this obscure question is most welcome. However, I cannot believe that the effect of etherization—if it has any effect in these cases—can last three weeks. There must be some other factor to explain the improvement which takes place in many instances. I hope it is etherization, but I do not think so.

DR. OSOOPOO: I have no theory on the subject. I am simply reporting an occurrence.

DR. E. P. RICHARDSON: A large number of cases at the Robert B. Brigham Hospital have chronic arthritis. Of these cases there were only two in which it seemed advisable to try radical surgical measures. One had a right colectomy; the other an ileostomy, which was left open for a year, thus totally excluding the large intestine. Both of these cases showed some improvement, but no more than other cases treated by conservative measures. We have not felt encouraged in undertaking radical operations on the large intestine in chronic arthritis.

DR. A. C. HEFFINGER: The advisability of the continuous, or the two-stage, operation for cancer of the sigmoid or rectum must depend largely upon the nature and extent of the involvement and condition of the patient.

The technic of Roux, of Lausanne, in the continuous operation is the cleverest and quickest I have seen. He does the abdominal stage first, dropping the cancerous iliac colon below the pelvic peritoneum which is closed over it.

The proximal end of the divided colon is next brought out at the upper angle of the abdominal wound, and the peritoneum and fascia sutured from the point of its emergence to the lower angle of the wound. The delivered gut is then placed on the fascia so that its free end opens on the skin at the lower angle of the abdominal wound. The skin is finally sutured over it to point of exit, where the artificial anus is established.

The second stage of the operation is now begun. The anus being closed with sutures, an oval incision is made around it and the rectum freed and pulled out with the previously detached iliac colon.

A deep drain is now laid in the rectal space, and most of the skin wound sutured. There is comparatively little hemorrhage during the operation, as the circulation is well controlled when the mesentery of the iliac colon is tied off down to the rectum. The use of the Reverdin needle during the abdominal stage of the operation shortens the operating time one third.

Book Reviews.

Obstetrics. By EDWARD BRADFORD CRAGIN, A.B., A.M. (Hon.), M.D., F.A.C.S.; Professor of Obstetrics and Gynecology, College of Physicians and Surgeons, Columbia University. Illustrated with 499 engravings and 3 plates. Lea and Febiger: Philadelphia and New York, 1916.

Professor Cragin has divided his book into six parts: Part I, Anatomy and Embryology; Part II, Physiological Pregnancy and Its Management; Part III, Pathological Pregnancy; Part IV, Pathological Labor; Part V, Obstetric Surgery; Part VI, Pathological Puerperium.

Professor Cragin in the preface states that in the work he endeavored to cover the subject concisely and to eliminate unnecessary discussion, basing the methods advocated upon the statistical results of the Sloane Hospital and his private practice.

Dr. Cragin has given the profession a most excellent work. It is a pleasure to read it, and each page contains valuable facts backed up by the author's wide and varied experience. To review the excellent points in the book would mean to take up each chapter by chapter. Especially interesting and valuable are the chapters on the care of the pregnant woman, the toxemias and the hemorrhages in pregnancy. The thor's remarks on mastitis and breast abscesses are very short and for the student are of little value. To impress the student or the recently graduated intern that speed in performing a Cesarean section is so essential as the author seems to deem it, is in the reviewer's opinion a mistake.

The illustrations are many, well chosen and executed. That that barbarous Schultz method of resuscitating the newborn baby is given a page, especially when the author does not recommend it, is to be regretted. The traction handle in the two illustrations of the Tarnier axis-traction forceps is placed wrongly, and in the next edition should be corrected.

The book is well made and printed, not cumbersome, as so many of the text books are, and remarkably free from typographical errors. The Sloane Hospital is to be congratulated that it has had such an able exposition of its methods which, of course, Dr. Cragin is responsible for. It is a book which must be in the hands of all serious-minded obstetricians.

Bone and Joint Studies. I. By LEONARD W. ELY, Associate Professor of Surgery, Orthopedics; and JOHN FRANCIS COWAN, Assistant Professor of Surgery. From the Laboratory of Surgical Pathology, Stanford Medical School, 1916.

These studies of Ely and Cowan comprise five separate arbeits.

1. Experimental resection of the dog's knee joint (Ely and Cowan).
2. The resection of the tissues of the knee joint of the rabbit to injury (Ely and Cowan).
3. Regeneration of bone marrow (Ely).
4. A study of 100 dry bones sawn in the laboratory (Ely).
5. A study of the sterno-clavicular joint (Ely).

Many new and interesting facts seem to have been established. It was found, for instance, that in spite of a formal resection and subsequent immobilization of the knee joint of dogs, only two out of twenty-two resulted in bony union, and in twelve of these there remained motion of 20° or more when the animal was sacrificed, in most cases several months after the experiment. It seems evident that when only small portions of the bone ends are removed in dogs' knee joints, bony ankylosis will not ensue, as it usually does in human cases. If much bone be removed, a true joint with articular cartilage will not form in dogs.

The transformation of synovial membrane into cartilage has been noted and also the replacement of cartilage by fibrous tissue, with or without synovial membrane on its surface. These results confirm the findings of other workers, that cartilage and synovial membrane are similar structures and that one may replace the other. Where synovial membrane is subjected to pressure it is more likely to transform into cartilage.

In the experiments on the reaction of the tissues of the knee joints of rabbits to injury, it was found that if small portions of the cartilage were removed from the intercondylar space where there was no pressure, no new cartilage formed in the majority of cases, but when, in addition, a hole was bored through the bony buttress beneath into the marrow, new cartilage did form and a new bony plug shut off the marrow.

Ely found in his work on the regeneration of the bone marrow that, after its removal from the shaft of the rabbit's tibia, it quickly regenerated and left scarcely any trace of the operation.

The observations on 100 sawn bones and the studies of some 90 supposedly normal sternoclavicular joints in autopsy subjects are both interesting and valuable contributions.

The entire collection of papers represents research in bone and joint fields, carefully carried out, fruitful in results, and presented with such adequate illustrations and summarized conclusions that they may be read with profit, not only by the laboratory worker, but by the clinician.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

THE PROTEST AGAINST INDUSTRIAL HEALTH INSURANCE.

SINCE the beginning of the debate in the community and the medical profession on the subject of industrial health insurance, the JOURNAL, desirous as it has always been, for fair representation of both sides in every arguable question, has published numerous communications, protesting, not only against specific measures of industrial health insurance, but against the general principle upon which such insurance and other measures of social legislation are based. It has published also letters approving industrial insurance and original articles of exposition or advocacy on both sides of the question.

In another column of its present issue, the JOURNAL publishes another critical communication of protest, proceeding from physicians of the important industrial center of Fall River, to which the attention of the medical profession throughout the state is directed. In this connection there is particular interest and pertinence in the popular address, delivered on

February 11, by Dr. F. J. Cotton, at the Harvard Medical School on "The Development of Employers' Liability Insurance in Accident and Sickness." In this address Dr. Cotton reviewed his personal experience with the subject and is reported in his remarks to have commented as follows on his conclusions therefrom:

"I worked for some time on the medical end of the health insurance problem trying to solve some of the difficulties that would present themselves. But now I don't see why it should be a medical problem. The only reason that can be given is precedent. Why not let the doctors alone and let it be run the same as any insurance plan? Let the workman be insured, but let him receive enough compensation so he can go to a hospital or call his own doctor and pay his bill himself."

"The plan would, of course, lead to physical examination in employment offices. That will mean that many men will be rejected because of some ailment that they themselves may not suspect. Those turned down would add to the already heavy burden of institutions. The plan would also necessitate a medical referee, who could determine when a man is fit to return to work.

"Everywhere the health insurance plan has been tried it has been found that recuperation takes longer and longer. Some of that is due to ignorance on the part of the patient, who doesn't know whether he is fit to go back to his bench. More of it, I think, is due to disinclination to return to work. The attendant doctor would be less able to tell the patient whether he is fit, and so an impartial doctor would have to be called in.

"Two worth-while things have resulted where health insurance has been tried. One is alleviation of suffering because of the two-thirds pay that accompanies sickness. The other is the precautions taken to prevent accidents. The only betterment to the workingman is the wages he receives while sick; the medical attention he gets under health insurance is no better."

"In some places health insurance has led to disgusting competition between cheap doctors and real practitioners."

These comments from a surgeon of Dr. Cotton's position and experience are illuminating. With reference to the communication from Dr. Dolan, there should be no reason for the impression that the JOURNAL's editorial attitude in the question of industrial health insurance or on any other matter has been, or would ever be, one of antagonism to the members of the Massachusetts Medical Society, whose welfare the JOURNAL has most sincerely at heart. It is, however, the JOURNAL's function, as an independent scientific publication, apart from its position as

the official organ of the Massachusetts Medical Society, to afford free opportunity in its columns for the dignified and proper expression of differing opinions and for the legitimate discussion of problems of importance to the medical profession in its relation to the community at large. This function, we believe the JOURNAL to be discharging without bias in the present situation.



LEGISLATION FOR CONTROL OF TUBERCULOSIS.

THE control and gradual suppression of tuberculosis in any community must be dependent not only on the zeal and efficiency of organizations and officials concerned with the subject, but also on adequate legislative support and authority for their action. The anti-tuberculosis legislation in Massachusetts is, in the main, adequate, but it still lacks provision for the control of wilfully careless and incorrigible tuberculosis patients, and the compulsory removal from their homes of patients whose continued presence there is a jeopardy to others. In accordance with this necessity, the Massachusetts Association of Boards of Health has, this year, submitted to the Massachusetts General Court two bills designed to supplement existing legislation and to meet the requirements of the conditions stated. The first of these bills (House 74) is concerned with "the removal of certain persons infected with tuberculosis," and its provisions are as follows:

SECTION 1. Whenever it shall appear to the board of health of a city or town that, by reason of his wilfulness or carelessness, the condition of a person suffering from tuberculosis is such as to endanger his family or the public, such board of health may request the justice of the police, municipal, or district court having jurisdiction in the district wherein such person resides, to order his removal either to some proper institution for the care of tuberculous patients in the locality in which the patient resides, or to some other such institution maintained by the state. If the magistrate is satisfied, after full investigation that, by reason of his wilfulness or carelessness, the condition of the person suffering from tuberculosis is such as to endanger his family or the public, then such magistrate may issue an order authorizing and instructing any constable, police officer or other agent to whom it may be directed, to take custody of and remove such patient to the designated place, and to incur any necessary expense in connection therewith, including reasonable fees for the removing agent, such expense to be paid by the

board requesting such removal, but the patient shall have the right to appeal to the Superior Court, as in the case of crimes and misdemeanors. After such removal, the officer or agent making the same shall file such order, with his return thereon, with the court from which it issued. The person so removed shall remain in the institution until discharged by the authorities in charge thereof; and the officer in charge of such institution shall have authority to restrain the patient therein and to enforce compliance with the rules and regulations thereof; *provided, however*, that whenever a patient shall so request, in writing, the authorities in charge of said institution shall notify the justice of the court which has taken original cognizance of the case of the desire of such person to be discharged; and thereupon, after hearing, the court may order such discharge or take such action with regard thereto as may be deemed expedient, but the patient shall have the right to appeal to the superior court, as in the case of crimes and misdemeanors, but no such request shall be entitled to consideration or action as above provided if made within four weeks after a decision on a previous request. Any authority in charge of such institution shall, upon failure to communicate the request of a patient, as herein provided, be deemed in contempt of the court having jurisdiction.

SECTION 2. In case any inmate of a sanatorium or hospital for the care and treatment of persons ill with tuberculosis persists in disobeying the rules of such institution and defying the orders of its officer, or conducts himself in such manner as to endanger the health or comfort of the other inmates, or the discipline of the hospital, the officer in charge of such institution may petition the police, municipal or district court having jurisdiction where said institution is located, and, in accordance with the provisions of the preceding section, the magistrate having jurisdiction may order the removal of such patient to any institution maintained by the state for the care and control of unruly or incorrigible tuberculous patients.

SECTION 3. If it shall appear that the patient removed under the preceding sections is able to pay the cost of his care therein, or any part thereof, the magistrate ordering the removal shall order and require the patient to make such payment, and, upon failure so to do, the board of health or officer requesting such removal, may bring civil action against the patient, in the ordinary manner provided by law, to recover the amount stipulated in the order.

SECTION 4. Any action taken hereunder shall be in nowise considered a record of crime or misdemeanor against the patient involved.

SECTION 5. This act shall take effect upon its passage.

The wilfully careless and incorrigible consumptive injures himself as well as being dan-

gerous to many others. Problems concerning such persons have been considered on a number of occasions by the Massachusetts Association of Boards of Health. A special committee of this Association has had the matter under consideration for two years, and this committee now offers as its solution the above bill and one which follows. This second bill (House 75) makes the following provisions "for the care and treatment of wilfully careless and incorrigible tuberculosis patients":

SECTION 1. The trustees of hospitals for consumptives, subject to the approval of the governor, are hereby authorized to take, in the name and for the use of the Commonwealth, land in fee by right of eminent domain or to purchase the same; and to erect and maintain on such lands, or upon lands previously taken for the maintenance of sanatoria, a hospital or hospitals for the custody, care and treatment of incorrigibles and careless tuberculous patients, and for this purpose may expend a sum not exceeding \$50,000.

SECTION 2. Within sixty days after any land is taken under the provisions of this act, the said trustees shall file and cause to be recorded in the registry of deeds for the county in which such land is situated a description thereof, sufficiently accurate for its identification, together with a statement of the purpose for which the same is taken, which description shall be signed by a majority of said trustees; and such recording shall operate as a taking of the real estate therein described.

SECTION 3. The trustees of hospitals for consumptives shall, from the appropriation made for such purpose, pay all damages sustained by any person, firm or corporation by such taking under the authority of this act. Any person, firm or corporation sustaining damages as aforesaid, who fails to agree with said trustees as to the amount thereof, may have the same assessed and determined in the manner provided by law in the case of land taken for the laying out of highways, on application at any time within three years after the taking of such land in the manner above prescribed, but no such application shall be made after the expiration of said three years.

SECTION 4. This act shall take effect upon its passage.

These two bills seem entirely just, and their passage desirable; for, without inflicting unwarrantable hardship on the individual, they give to boards of health and to institutions for the care of consumptives power to take such action as is best, not only for the individual but for the community. The Committee solicits communications from any who are opposed to these measures, as well as from those who would

like to see them become laws. Any facts or suggestions in regard to the problem will be gladly received, and communications concerning them should be addressed to Mr. Seymour H. Stone, 3 Joy Street, Boston.

THE INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE Instructive District Nursing Association has recently published a little pamphlet entitled "Public Health and Private Conscience," which deserves attention not only for its appeal for financial support, but because it is an attempt to put before the public of Boston one aspect of its public health problem, as demonstrable by the increasing demand for the services of the visiting nurse. As is stated in one paragraph, the care of public health is, or should be, a public function. Aside from its day-by-day service in the homes of Boston's less fortunate citizens, the Association recognizes a further duty—that of developing a sense of community responsibility which shall be equal to the many real social needs which the public health movement has demonstrated. The private conscience can be effective only when it is translated into terms of social and political action.

It is estimated that the actual cost of a nurse's visit is fifty-five cents. Every patient who can do so is asked to pay this fee, or as large a part of it as the state of the family finances permits. In this way the self-respect of the family is preserved, and the fees so received enable the Association to render free nursing service to a larger number of wholly dependent charges.

"The receipts from patients have steadily risen from \$1,500 in 1912 to \$6,500 in 1916. At the same time, however, the demand for free nursing has increased. Every year the budget has had to be enlarged to meet the pressing need of more nurses and more equipment, although part of the cost of this expansion has been taken care of by progressive economies in organization and administration. There have never been enough nurses to meet Boston's public health needs, for the reason that the possibilities of genuine, result-getting service are almost limitless. In 1915 the Boston Instructive District Nursing Association cared for 900 patients more than during the preceding year. More nurses are needed. More equipment is needed. Above all, there is needed a more general under-

standing of the work of the Association, its purposes and its methods.

"Twenty-five thousand dollars endows a nurse; \$1,200 pays a salary of a supervising nurse for one year; \$1,000 pays the salary of a staff nurse for one year. There are fifty nurses on the staff, and thirty of them are already supported. Of these thirty, nine are memorial nurses and twenty-one are supported by individuals, churches, etc.; \$500 pays the salary of a staff nurse for six months; \$125 pays for all the work which is now being done for the non-paying, very poor patients for one day; \$75 endows one nurse for one day; \$50 pays for the care of one chronic patient for one year; \$25 pays the salary of one staff nurse for one week; \$5.50 pays for the care of one newly born baby and its mother; \$2.75 pays for pregnancy care of one prospective mother."

The idea of a district nurse was first made practicable by the Woman's Education Association in 1885 and early the following year a single nurse was employed to visit tenement homes in the South Cove District of Boston, to do regular nursing service under the direction of the physician in charge, and to give instruction in the fundamentals of hygiene, infant care, and sanitation. Two more nurses were quickly added, and so was formed the Boston Instructive District Nursing Association. The first annual report records a total of 700 cases and over 7,000 visits made. The thirtieth annual report, for the year 1915, shows a total of over 14,000 cases cared for and about 130,000 visits made. Each year's expansion has been in response to an insistent demand which has never been fully met.

Over fifty years ago, in a speech delivered in the British House of Commons, Benjamin Disraeli said: "Public Health is the foundation upon which rests the happiness of the people and the power of the state. Take the most beautiful kingdom: give it intelligent and laborious citizens, prosperous manufacturers, productive agriculture; let arts flourish, let architects cover the land with temples and palaces; in order to protect these riches maintain large standing armies, modern weapons, and fleets; however, if the population remains stationary, if the people decrease yearly in vigor and stature, that nation must perish." "That," said Disraeli, "is why I consider the first duty of a statesman is the care of public health."

PREPARATION FOR WAR.

THOUGH a considerable proportion of the American people still earnestly desire and hope for the honorable avoidance of actual hostilities and bloodshed, the fortnight which has elapsed since the severance of official diplomatic relations between the United States and Germany has been throughout the country one of quiet, but none the less genuine, preparation for the eventualities of possible war. Such preparation has been made the more desirable by suggestions of brewing trouble in Mexico and Cuba. As in preventive medicine, one of the often effective methods of averting an evil is to take intelligent measures for meeting it.

In New York, Mayor Mitchell has appointed a committee on national defence, which has already made and reported an interesting canvass of the available man-power of the nation. In this report it is computed that there are at present in the United States 30,091,564 males actively employed in all manner of pursuits, of whom 21,071,076 are between the ages of 18 and 45 years. Of these, 43.35% are single men, and 10,535,940 are physically fit for military service.

In Massachusetts a similar committee has been appointed and is engaged in summarizing the resources of the Commonwealth.

Not only military and economic, but also medical and nursing facilities are being reviewed and organized. The American Red Cross is in a state of active efficiency and readiness. Dr. Franklin B. Martin of Chicago has been appointed medical member of the Council of National Defence at Washington.

This council has appointed a medical standardization committee, which has completed its permanent organization with Dr. Frank F. Simpson as president and Dr. T. W. Richards as secretary. The executive committee consists of Dr. Richard H. Harts of Philadelphia, Lieutenant Colonel Carl R. Darnell of the army, Dr. Joseph A. Murphy of the navy, Assistant Surgeon-General Rucker, of the Public Health Service.

The standardization committee will prepare a list of medical articles and supplies for use in war time, conforming as nearly as possible to similar articles produced commercially in peace times. By this standardization it is expected to speed up production, reduce cost, and stabilize manufacture.

MEDICAL NOTES.

THE MCINTIRE PRIZE.—In 1915, Dr. Charles McIntire, after twenty-five years of faithful service, resigned the secretaryship of the American Academy of Medicine. In appreciative commemoration of his service, the Academy raised a fund whose income should be expended in the award of a triennial prize. In accordance with this plan, two prize offers are now announced, the prizes to be awarded at the annual meeting in 1918 and in 1921. The subject for 1918 is "The Principles Governing a Physician's Compensation in the Various Forms of Social Insurance," and for 1921, "The Effect of Child Labor on the Growth of the Body." The prize for 1918 is \$100, that for 1921, \$250. Essays submitted in competition for these prizes must consist of not less than 5,000 or not more than 20,000 words and must reach the secretary of the Academy on or before January 1 of the years for which the prizes are offered. The present secretary is Dr. Thomas W. Grayson, Pittsburgh, Pa.

MEDICAL SCHOLARSHIPS FOR WOMEN IN RUSSIA.—It is reported that the sum of 200,000 rubles has been given anonymously to the Higher Institute of Medicine for Women at Petrograd for the establishment of scholarships in the name of the late Count Vorontzoff.

CANCER STATISTICS.—Recently published statistics of cancer mortality show that the rate has steadily increased during the last fifteen years.

"The rate was 63 per 100,000 in 1900 and in 1914 had increased to 79.4. This is the report from the registration area, which includes approximately two-thirds of the country's population. The states having the highest rate are: Vermont, 109.9; Maine, 107.6; Massachusetts, 101.2; New Hampshire, 100.8, and California, 97.9. A part of the difference between the states having a low rate of mortality from this disease and those having a higher rate is due to the fact that the average age of the population is greater in some states having a high average, as cancer is more likely to attack those of advanced age than those in the earlier period of life. The small rate in some of the Southern States, running far below the average for the country, is believed to be due to the fact that the Negro is less susceptible than the white to the disease. The death rate for whites in the states that make returns is 80 per 100,000, while among the colored population it is only 56.2."

EFFICIENCY OF AMERICAN RED CROSS.—Report from Washington on February 9, states that in the event of war, the American Red Cross could, within a few days, mobilize a sufficient personnel and equipment to take medical care of an army of 1,000,000. On Saturday, February 1, with the severance of diplomatic relations between the United States and Germany, a call was issued to Red Cross chapters throughout the country

to place themselves on a footing for field work. Mr. Eliot Wadsworth, acting chairman of the organization, estimated that the force which could be mobilized immediately in case of war would include the following:

"Twenty-six completely equipped army and navy base hospital units, with a total personnel of 1250 nurses and 599 nurses' aids.

"A hospital base reserve of 415 nurses and 525 nurses' aids.

"Thirty-one partly complete navy detachments of 20 nurses each.

"One hundred and fifteen emergency detachments.

"A corps of expert instructors in surgical dressings, totaling about 120."

It is estimated that if 30 per cent. of those to whom the Red Cross has given training responded to the call for volunteers, the Red Cross could put in the field, 270 trained nurses, and 5000 nurses' aids. It is believed that no national emergency has ever found the National Red Cross better prepared or more efficient than it is today.

EUROPEAN WAR NOTES.

HONOR TO A BRITISH MILITARY SURGEON.—It is announced that the Grand Cross of the Order of the Bath has been conferred on Surgeon-General Sir Alfred Keogh in recognition of his services in the organization of the British Army Medical Corps during the European War. At the outbreak of the war Dr. Keogh was rector of the Imperial College of Science and Technology, but in October, 1914, succeeded Sir Arthur Sloggett in the war office where he had himself served from 1904 to 1910 and with whose business he was, therefore, previously familiar.

WITHDRAWAL OF AMERICAN RED CROSS FROM GERMANY.—Report from Berlin on February 12 states that with the severance of diplomatic relations between the United States and Germany, the American Red Cross unit of three surgeons and three nurses, which was on duty at Graudenz, Prussia, was ordered by Ambassador Gerard to withdraw, and has already departed for Switzerland.

WAR RELIEF FUNDS.—On February 17 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	\$272,883.07
French Wounded Fund	196,509.22
Armenian Fund	152,758.04
French Orphanage Fund	84,188.07
British Imperial Fund	83,683.15
Surgical Dressings Fund	70,777.97
Serbian Hospitals Fund	70,682.98
Italian Fund	33,374.44
Facial Hospital Fund	25,525.67
Russian Refugees' Fund	16,932.48

BOSTON AND NEW ENGLAND.

WEEK'S DEATH RATE IN BOSTON.—During the week ending February 10 the number of

deaths reported was 290, against 266 for the same period last year, with a rate of 19.58, against 18.24 last year. There were 42 deaths under one year of age, against 46 last year, and 113 deaths over 60 years of age, against 73 last year.

The number of cases of principal diseases were: diphtheria, 63; scarlet fever, 30; measles, 105; whooping cough, 2; typhoid fever, 3; tuberculosis, 50; smallpox, 1.

Included in the above were the following cases of non-residents: diphtheria, 8; scarlet fever, 3; measles, 8; tuberculosis, 8; smallpox, 1.

Total deaths from these diseases were: diphtheria, 4; scarlet fever, 2; measles, 1; tuberculosis, 20.

Included in the above were the following deaths of non-residents: scarlet fever, 1; tuberculosis, 2.

SPRINGFIELD ACADEMY OF MEDICINE.—The February meeting of the Academy was held at 137½ State Street on Tuesday, February 13, at 8. 15 P.M.

Dr. George D. Stewart of New York spoke on "Radiation and the Treatment of Cancer."

Academy Notes.

Attention is called to an error in the date announced for the opening of the course on cardiovascular-renal and pulmonary diseases. The first meeting was held on Friday, February 16th. The course of dental infections and arthritides began on Tuesday, February 13th.

The March meeting of the Academy will be addressed by Dr. Alfred Stengel of Philadelphia; the April meeting by Dr. Edward Martin of Philadelphia. L. D. CHAPIN, M.D., Secretary.

CASE OF SMALLPOX IN BOSTON.—In a recent issue of the JOURNAL we noted editorially a minor outbreak of smallpox in Connecticut and commented on the danger to the community of such preventable epidemics. Last week a case of smallpox was discovered in Boston in the person of a walking delegate of a labor union in Connecticut, who, while in the initial stages of his disease traveled from Waterbury to Cambridge and thence to Boston in the public ears. He had not been vaccinated.

THE MILK AND BABY HYGIENE ASSOCIATION.—The report of the Milk and Baby Hygiene Association for the month of January states that 2,235 babies were cared for, an increase of 154 over the corresponding month last year. Sixty-four medical conferences were held with an average attendance of thirty-two babies. Mrs. Lenah Austin Smith has been appointed superintendent of nurses to take the place of Miss Mary A. Jones, who has resigned to accept a position as superintendent of the District Nursing Association of Fall River.

The Massachusetts Medical Society.

STATED MEETING OF THE COUNCIL.

A STATED meeting of the Council was held in John Ware Hall, Boston Medical Library, Wednesday, February 7, 1917, at 12 o'clock, noon. The President, Dr. Samuel B. Woodward, was in the chair and the following 77 councilors present:

BARNSTABLE.	MIDDLESEX SOUTH (<i>Cont.</i>)
E. E. Hawes.	J. O. Tilton.
C. W. Milliken.	Alfred Worcester.
BRISTOL NORTH.	NORFOLK.
W. H. Allen.	T. F. Greene.
R. D. Dean.	A. N. Broughton.
F. A. Hubbard.	P. W. Carr.
BRISTOL SOUTH.	G. W. Kaan.
E. F. Cody.	Bradford Kent.
E. F. Curry.	Joseph Kittredge.
W. A. Dolan.	T. J. Murphy.
R. W. Jackson.	A. P. Perry.
ESSEX NORTH.	J. W. Pratt.
F. B. Pierce.	Victor Safford.
R. V. Bakelite.	NORFOLK SOUTH.
J. J. O'Sullivan.	E. N. Mayberry.
F. W. Snow.	PLYMOUTH.
ESSEX SOUTH.	A. A. Mackeen.
Emile Poirier.	Gilman Osgood.
C. H. Bangs.	A. E. Paine.
R. E. Bicknell.	SUFFOLK.
N. P. Breed.	G. W. W. Brewster.
P. P. Johnson.	W. L. Burrage.
HAMPDEN.	H. A. Christian.
J. M. Birnie.	A. L. Chute.
T. S. Bacon.	J. A. Cogan.
M. B. Hodskins.	G. A. Craigin.
E. A. Knowlton.	E. G. Cutler.
MIDDLESEX EAST.	Albert Ehrenfried.
W. H. Keleher.	C. M. Green.
G. N. P. Mead.	W. C. Howe.
MIDDLESEX NORTH.	J. L. Morse.
J. V. Meigs.	W. H. Robey, Jr.
J. H. Lambert.	Mary A. Smith.
MIDDLESEX SOUTH.	Richard M. Smith.
W. D. Swan.	F. B. Talbot.
M. H. Bailey.	WORCESTER.
H. T. Baldwin.	G. O. Ward.
A. W. Dudley.	W. H. Delahanty.
C. M. Hutchinson.	M. F. Fallon.
A. A. Jackson.	J. O. Genereux.
S. F. McKeen.	David Harrower.
G. A. Miles.	W. L. Johnson.
C. E. Mongan.	F. H. Washburn.
Godfrey Ryder.	S. B. Woodward.
E. H. Stevens.	WORCESTER NORTH.
	E. L. Fiske.

The reading of the records of the previous meeting was omitted by vote.

The President made the following remarks:

Members of the Council:

Why it should have been ordained that accident insurance, health insurance, special council meetings, repeated and protracted conferences with special committees, should be poured on my devoted head during the last few months is one of the unsolved and insoluble problems of the times, and thus it must remain.

He who said that the Massachusetts Medical Society was asleep is no longer anxious to disclose to me his identity. I tell you that in moving about the State, I have found it awake, ready at least to criticize, not always I fear

wisely, everything and anything attempted by you and your committees. One reason for the criticism is want of knowledge of work done, owing to the shrinking modesty of the committees themselves, who far too briefly, as a rule, speak of what they have accomplished. Who thought favorably, who knew anything, I might almost say, of the work of the Committee on Ethics, until at the last annual meeting the chairman made an extended report of its activities? Who has the faintest idea of the work of the Committee on State and National Legislation, until he learns that last year one member was for six months almost daily at the State House and that the Committee, or a portion of it, met almost weekly during the legislative session, while its attendance at hearings consumed an incredible amount of the time of its members?

The Society is awake and, judging from the direction from which we most frequently hear, the enthusiasm aroused in the Middlesex villages and farms by the ride of Paul Revere has not altogether subsided. We have held a special meeting to consider health insurance, by no means the only meeting in one hundred years, as was stated by an over-enthusiastic gentleman, whose failing memory covered but a short time, for we had such a meeting in 1914, but truly an infrequent occurrence. The Society is awake, but are the individual members, all of them, ready to take hold and do what they are so ready to criticize others for not doing better? It is much easier to criticize than to lend a hand. Thirty men, out of a committee of forty, promised to find out, each in his district, the family physician of individual members of the legislature and through him, or otherwise, to impart knowledge on such medical subjects as might be thought desirable. A request to ascertain the stand taken by members of the legislature on vaccination and report results, has brought, in two months, responses from less than one-half of these gentlemen, and of the standing of legislators on this matter we know but little. Do not expect too much of your legislative committee if this is the measure of your support.

An active and reporting member writes me: "The family physician has failed me in nearly every instance, and I have to communicate directly with each representative and the senator."

The President referred feelingly to the loss to the Society occasioned by the recent death of Dr. Charles F. Withington, president for the last two years, and Dr. Edward M. Buckingham, treasurer of the Society for twenty years, and sketched the life of each, as he did that of Dr. Harry Pringle Robinson, late councilor from the Essex North District Medical Society.

The names of the Nominating Committee of the Society were read by Districts, and the following members responded and retired: E. E. Hawes, F. A. Hubbard, R. V. Bakel, J. M. Birnie, E. H. Stevens, T. J. Murphy, A. E.

Paine, G. W. W. Brewster, David Harrower, E. L. Fiske.

Dr. Green read the appended report of the Committee on Membership and Finance as to Membership, and it was accepted and its recommendations adopted by vote:

REPORT OF COMMITTEE ON MEMBERSHIP AND FINANCE AS TO MEMBERSHIP.

The Committee on Membership and Finance makes the following recommendations as to membership:

- That the following named Fellow be allowed to retire, under the provisions of Chapter I, Section 5, of the By-Laws:

Gruber, Samuel James, of Brockton.
2. That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the By-Laws:

Barry, Rolla Grant, of Worcester, (present address, State Hospital for the Insane, Columbia, South Carolina).

Blake, James Eddy, of Roslindale, (present address, Lisbon, New Hampshire).
Bresnahan, John Francis, of Roxbury, (present address, 56 Humphry St., Swampscott, Massachusetts).

Coates, Edward Augustus, of Winthrop, (present address, Army Medical School, Washington, D.C.)
Grey, Ernest George, of Roxbury, (present address, The Johns Hopkins University, Baltimore, Maryland).

Martin, Miles, of Boston, (present address, The Gregson, Santa Barbara, California).

Mills, Charles Fisher, of Framingham, (present address, "somewhere in China").

Prescott, Henry Dudley, of New Bedford, (present address, 46 Old Military Road, Saranac Lake, New York).

Simonds, Otto Franklin, of Wells Franklin, Philadelphia, (present address, 922 Rose Building, Cleveland, Ohio).

Smith, William Francis, formerly of Rutland, (present address, 14 Wentworth Court, Malden, Massachusetts).

Wiseman, John Ignatius, of Dorchester, (present address, Connecticut Hospital for the Insane, Middletown, Connecticut).

- That the following named Fellows be allowed to change their district membership, without change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

Boutwell, Horace Keith, from Suffolk to Norfolk.
Butler, Patrick Francis, from Middlesex South to Suffolk.

Greene, Daniel Crosby, from Middlesex South to Suffolk.

Harvey, William Wirt, from Suffolk to Norfolk.
Heffernan, David Aloysius, from Middlesex South to Suffolk.

Irving, Frederick Carpenter, from Norfolk to Suffolk.
Loder, Halsey Beach, from Middlesex South to Suffolk.

Ober, Frank Roberts, from Middlesex South to Suffolk.
Rushmore, Stephen, from Norfolk to Suffolk.

Strong, Richard Pearson, from Middlesex South to Suffolk.
Noyes, Margaret Louise, from Middlesex South to Suffolk.

For the Committee on Membership and Finance,
CHARLES M. GREEN, Chairman.

The petition of P. S. Marie of Taunton to be restored to the privileges of fellowship was

acted on favorably by the committee to which it had been referred, and it was voted that he be restored under the usual conditions. A petition from E. F. Haines to be restored was referred to this committee: W. C. Howe, H. M. Chase, Frederick Winslow.

The President nominated and the Council appointed the following list of delegates:

To the House of Delegates of the American Medical Association for terms of two years from June 1, 1917:

Principal, F. B. Lund, Boston; *Alternate*, W. H. Robey, Jr., Boston.

Principal, E. F. Cody, New Bedford; *Alternate*, N. S. Hunting, Quincy.

To the annual meetings of the following state medical societies:

MAINE: W. E. Fernald, Waverley; E. V. Scribner, Worcester.

RHODE ISLAND: W. H. Allen, Mansfield; David Harrower, Worcester.

NEW HAMPSHIRE: E. S. Jack, Melrose; A. H. Pierce, Leominster.

CONNECTICUT: S. A. Mahoney, Holyoke; C. S. Chapin, Great Barrington.

Dr. Green presented a financial report as chairman of the Committee on Membership and Finance for the year 1916 and the report of the Auditing Committee, appointed at the October meeting of the Council, and the motion being made that this report be accepted as the Treasurer's Report, and duly seconded, it was so voted unanimously. (See end of Proceedings for report.) Dr. Green stated that he had audited the expenditures made by the President since the death of the late Treasurer, Dr. Buckingham, December 23, 1916, and had found them correctly vouched. *Moved*: That the Massachusetts Medical Society through its Council hereby confirms the payment of any checks signed by its President and drawn on the New England Trust Company since the decease of its Treasurer, Dr. Edward M. Buckingham, and up to the time of the election of a new Treasurer.

Dr. Green offered the following motion, on the unanimous recommendation of the Committee on Membership and Finance. *Moved*: That \$10,000 of the cash balance in the treasury be added to the Permanent Fund; and that the Treasurer be instructed to invest this sum in securities satisfactory to the Committee on Membership and Finance.

He explained that this portion of the cash balance might be invested so that it would bring in a greater return than at present. Dr. Mongan moved that it be laid on the table, and on being put to a vote it was placed on the table by a show of hands, 38 in favor and 24 opposed. Later in the meeting, on motion by Dr. Dolan, the sum of \$5000 was substituted for \$10,000, the motion having been taken from the table, and as amended it was passed unanimously.

Dr. Green submitted this proposed amendment to Chapter VI, Section 4, of the By-Laws:

In accordance with Chapter IX of the By-Laws, the Committee on Membership and Finance submits to the Council the following proposed amendment to Chapter VI, Section 4, defining the duties of the Treasurer:

That the fourth paragraph of Chapter VI, Section 4, be amended so that it shall read:

He shall attend the meetings of the Committee on Membership and Finance, furnish the committee with such data on membership and finance as the committee may require, and shall make all investments, and re-investments of the society's funds subject to the approval of this committee.

No action was taken.

Dr. Green offered a Budget that had been prepared by the Committee on Membership and Finance and moved its adoption as the budget for the current year. Dr. Dolan moved that it be laid on the table, but his motion was lost by a vote of 22 in favor and 27 opposed, whereupon the Budget was accepted by vote. (See end of Proceedings for Budget.)

The Nominating Committee reported the name of Dr. Arthur K. Stone, of Boston as a candidate for Treasurer. Dr. Breed put in nomination the name of G. Z. Goodell, of Salem, for that office, Dr. T. J. Murphy that of G. W. Kaan, of Brookline. A motion by Dr. Chute that the report of the Nominating Committee be accepted and the lists closed prevailed by a vote of 34 to 32, and on proceeding to ballot 74 votes were cast, 54 being for Arthur K. Stone, and he was declared elected treasurer of the Society for the unexpired term of the late treasurer, namely, from December 23, 1916, to June 13, 1917.

Dr. Reynolds presented the following report of the Cancer Committee appointed June 7, 1916, and spoke for its adoption, being followed by Dr. R. B. Greenough, another member of the committee, speaking on the fifth recommendation of the report, namely, on state-wide opportunities for free laboratory diagnosis of pathological tissue. He explained that the plan is in operation in New York State and that the Massachusetts Health Commission may be assisted by the Massachusetts Medical Society in overcoming the delays incident to getting laws and an appropriation from the Legislature, if the cancer committee works in co-operation with the Cancer Commission and the Health Commission. The report was accepted by vote of the Council and its recommendations adopted, and this committee appointed, on nomination by the President:

Edward Reynolds, *Chairman*,
J. Collins Warren,
Robert B. Greenough,
John T. Bottomley,
Edward P. Richardson.

REPORT OF THE COMMITTEE ON THE RELATION OF THE SOCIETY TO THE ANTI-CANCER CAMPAIGN.

Your Committee begs leave to report that it has given careful study to the progress of the Anti-

Cancer Campaign in this country as well as in Europe. It believes that the widespread campaign of education which has been conducted among the laity by the American Society for the Control of Cancer has been received by them with much interest and has been of good effect. It finds that several State Medical Societies, notably that of Pennsylvania, have of late years created special committees for the purpose of awakening increased interest towards the control of cancer among the medical profession also, and that the custom of appointing such committees is rapidly spreading throughout the several State Societies of the country.

It recommends:

1. That the Massachusetts Medical Society should appoint a permanent Committee of five on the control of cancer.
2. That that Committee be advised to place itself in communication with the Executive Secretary of the American Society for the Control of Cancer.
3. That it be directed to urge that each of the District Societies should for the immediate future devote one of their meetings each year to the subject of the control of cancer, accompanying that request with an offer to furnish speakers for those meetings if so desired.
4. That that Committee should be authorized to distribute to the profession in Massachusetts at the expense of the Society, but under the direction of the Committee on Membership and Finance, such educational literature as it may deem wise.
5. That that Committee be directed to use all proper efforts towards securing state-wide opportunities for the free laboratory diagnosis of pathological tissue as is already being done with excellent results in some other states.
6. That that Committee be directed to urge upon the BOSTON MEDICAL AND SURGICAL JOURNAL the expediency of constant publication of such a brief outline of modern principles in the diagnosis and treatment of cancer as may meet its approval.

All of which is respectfully submitted.

EDWARD REYNOLDS,
J. COLLINS WARREN,
ROBERT B. GREENOUGH,
JOHN T. BOTTOMLEY,
EDWARD P. RICHARDSON.

The secretary read Bill, H. R. 17851, that had been introduced into the National House of Representatives by Congressman James A. Gallivan, of Boston, authorizing the Secretary of the Treasury to expend the sum of \$250,000 on an intensive study of infantile paralysis; and also a letter from Allan J. McLaughlin, Massachusetts Commissioner of Health, favoring the bill.
Voted: That the Council favors Bill H. R. 17851.

The President nominated and the Council appointed M. J. Rosenau and H. C. Ernst, delegates to the annual Congress on Medical Education, Public Health and Medical Licensure, at Chicago, Feb. 5, 6, 1917, to the sessions on public health and medical education respectively, and J. Q. Adams, of Amesbury was appointed Councillor in place of H. P. Robinson, deceased, for the Essex North District Medical Society. The President called for the report of the Committee of Arrangements as to the annual meeting but no representative of the committee was present.

Dr. Broughton presented a report of progress for the Committee on the Workmen's Compensation Act as follows:

REPORT OF THE COMMITTEE ON THE WORKMEN'S COMPENSATION ACT.

The Committee on Workmen's Compensation Act, appointed at the October meeting of the Council, respectively submit the following report of progress:

The Committee have had practically weekly meetings and we feel that we have already covered considerable ground. The Committee was divided into the following sub-committees: On Legislation, Finance, Statistics, and Publicity, and the work has been carried along by these in connection with the Committee as a whole. Further, a request was made of the president of each of the district societies that a committee of five be appointed to deal solely with the workmen's compensation matters, with power to represent the district as a whole in the event that immediate action were necessary before the District Society could be called together as a whole.

The Committee have made a careful study of the main points in which the Compensation Act is unsatisfactory to all concerned, and after most careful deliberation and a consideration of the merits of numerous suggestions as to desirable changes, Senate Bill No. 135 was drafted under the guidance of Mr. A. N. Frost, of Lawrence, who was selected to give us necessary legal advice in framing the bill and as to the best method of introducing it into the legislature.

The members of the Committee have had personal communication with various members of the House and Senate, and in this part of the work we have been greatly assisted by the Auxiliary Committee of the Committee on State and National Legislation. We are particularly grateful for the support given us by the Committee on Finance, and for the cordial cooperation and interest of the President, Dr. Samuel B. Woodward.

One of our meetings was held in Worcester for the greater convenience of the men in the western part of the state. It was well attended and most successful. We feel that if nothing else has been gained, the sharing in the work and discussions of our committee by so many representative Fellows throughout the state has been of real advantage to the society as a whole in the amount of interest and enthusiasm developed.

Accompanying this report is a statement of the Committee's criticisms of the Workmen's Compensation Act as it now stands and our suggestion for its improvement, which has been sent to each member of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society; and with this we sent also a circular letter asking for data regarding each member's experiences under this act. The replies are coming in very satisfactorily, and we hope to have some pertinent facts to set before the Joint Committee of the Judiciary at the hearing which will be held about the middle of February. In the mean time, we ask each member to do all that he can to insure the passage of this bill, emphasizing the fact that the point of first importance is that an injured workman shall receive the *adequate* treatment to which each should be entitled. With such help we hope that at the next meeting of the Council we may report its favorable passage.

Respectfully submitted,
ARTHUR N. BROUGHTON, Chairman.

It was moved and seconded that the Council approves the act of the President and the Committee on the Workmen's Compensation Act in introducing into the Legislature Senate Bill No. 135, and it was so voted.

The typewritten Records of the Society, Nov. 28, 1781 to June 2, 1869, and the Records of the Council July 18, 1782, to June 5, 1823, and the Charter Book, 1781-1806, all in two volumes, were at the meeting for the inspection of the Council.

Dr. Mongan spoke on the importance of conducting a campaign of education on the question of health insurance in Massachusetts and would like to have constructive legislation on this subject prepared by the medical profession; he moved and it was voted unanimously, that a committee of 23, consisting of the president and secretary of the Society, the committee of three, already a committee on health insurance, and one member to be appointed by the president of each District Medical Society, be constituted a committee on publicity and to consider the necessity for health insurance. *Voted:* That an amount not exceeding \$5000 be appropriated from the uninvested funds of the Society to be expended for the uses of the Committee of 23 on Health Insurance, and that next year an assessment in addition to the customary assessment be levied on the Fellows of the Society to reimburse the treasury for whatever money may have been so expended.

Adjourned at 2.05 p. m.

WALTER L. BURRAGE, *Secretary.*

TREASURER'S REPORT FOR THE YEAR 1916.

By reason of the demise of the Treasurer a few days before the close of the fiscal year, the Chairman of the Committee on Membership and Finance submits the following financial report, based upon the Treasurer's accounts, for the year 1916:

Balance from the year 1915 \$13,457.18

RECEIPTS OF THE YEAR 1916.

Assessments paid to Treasurer 1,141.00

Assessments paid to District Treasurers:

Barnstable	\$145.00
Berkshdr.	335.00
Bristol North	275.00
Bristol South	625.00
Essex North	877.00
Essex South	1,059.00
Franklin	150.00
Hampden	1,040.00
Hampshire	295.00
Middlesex East	350.00
Middlesex North	500.00
Middlesex South	2,000.00
Norfolk	2,339.00
Norfolk South	299.00
Plymouth	445.00
Suffolk	3,203.00
Worcester	1,299.00
Worcester North	404.00
	\$15,640.00

Assessments paid at Annual Meeting 1,156.00

Sale of dinner tickets 735.00

Interest on Massachusetts Bonds 560.00

Interest on deposits, New England Trust Co. 109.62

Interest on deposits, Old Colony Trust Co. 157.10

Interest from Savings Banks, general account 43.38

Interest from Savings Banks, Cotting Fund. 118.65

Interest on Annuity Policies of the Massachusetts Hospital Life Insurance Co. 867.86

Trust Fund of A. B. Enmons, 2nd, and Associates 2,445.00

Total receipts of the year \$21,973.61

Total debits \$35,430.79

EXPENDITURES OF THE YEAR 1916.

President's expense:	
Travelling	\$23.40
Postage and printing	24.68
	\$48.08

Secretary's expense:	
Stamped envelopes and printing	\$219.85
Addressing circulars	15.00
Engrossing diplomas	14.50
Stenographers at annual meeting	64.50
Incidentals	35.55
	\$349.40

Librarian's expense:	
Postage, printing and express	\$56.20
Bookbinding	22.65
	\$78.85

Treasurer's expense:	
Postage, stationery, and printing	\$92.54
Clerical work	28.10
Clerk at annual meeting	10.00
Premium on treasurer's bond	37.50
Box in Safe Deposit Vaults	10.00
Incidentals	3.14
	\$181.28

District treasurers' expense	\$1,026.16
Censors' expense	369.00
Supervisors' expense	49.18
Salaries of officers of the Society	1,325.00
Salaries of Society's editors of BOSTON MEDICAL AND SURGICAL JOURNAL	500.00
Delegates to American Medical Association meetings, travelling expenses	211.41
Committee of Arrangements (for annual meeting):	
The Copley Plaza Hotel	\$2,354.50
Cigars	116.40
Policemen	30.00
Clerks	20.00
Lantern (to show slides)	20.00
Printing	8.75
Music	100.00
Incidentals	29.85
	\$2,679.50

Committee on State and National Legislation:	
Legislative Bulletin	\$10.00
Stenographer	77.40
	\$87.40

Committee on Public Health:	
Incidentals	\$5.50

Committee on Membership and Finance:	
Postage	\$2.75
Printing	3.25
	\$6.00

Committee on Ethics and Discipline:	
Printing and typewriting	\$6.35
Travelling	7.64
	\$13.99

Committee on Medical Education and Medical Diplomas:	
Travelling	\$5.75

Committee on Workmen's Compensation Act:	
Clerical service	\$2.80
Defenses of malpractice suits	689.02
Rent	750.00
Shattuck Lecture	200.00

Cotting Lunch:	
February	\$52.08
June	162.00
October	64.66
	\$278.74

BOSTON MEDICAL AND SURGICAL JOURNAL .. 7,703.00

Agent for A. B. Emmons, 2d, and Associates (from Trust Fund)	646.98	Society's Editor	300.00	\$2,000.00
Annual dividend to District Societies	4,000.00	Appropriation for rent	750.00	
Returns of overpaid assessments, less com- missions	14.25	Appropriation for defense of malpractice suits	600.00	
Bank charges for collecting cheques	1.50	Estimated drafts on Trust Fund of A. B. Emmons, 2d, and Associates	700.00	
Loss on foreign cheque01	Appropriation for BOSTON MEDICAL AND SURGICAL JOURNAL	9,300.00	
Total expenditures of the year	\$21,222.80	Expense of Shattuck Lecture	200.00	
Total income of the year	\$21,973.61	Estimate for Cotting Lunches for the Coun- cil	300.00	
Total outgo of the year	21,222.80	Appropriations for Standing Committees: Arrangements	\$2,500.00	
Surplus of the year	\$750.81	Membership and Finance	5.00	
Balance from last year (1915)	13,457.18	Ethics and Discipline	25.00	
Balance January 1, 1917	\$14,207.99	Medical Education and Medi- cal Diplomas	25.00	
The permanent investments of the Society are as follows, there having been no change in these invest- ments during the year:		State and National Legislation	250.00	
Shattuck Fund:		Public Health	75.00	
Annuity policy of Massachusetts Hospital Life Insurance Company	\$9,166.87	Total	\$23,200.00	
Phillips Fund:		Estimated income of the year	22,000.00	
Massachusetts 3½% gold bonds	10,000.00	Possible deficit of the year	\$1,200.00	
Cotting Fund:		For the Committee on Membership and Finance, CHARLES M. GREEN, Chairman.		
Deposit in Roxbury Institution for Savings	\$1,000.00			
Deposit in Providence Institu- tion for Savings	1,000.00			
Deposit in Suffolk Savings Bank	1,000.00			
Permanent Fund:				
Annuity policy of Massachu- sets Hospital Life In- surance Company	\$11,253.30			
Massachusetts 3½% gold bonds	6,000.00			
Deposit in Franklin Savings Bank	1,074.48			
Invested funds Jan. 1, 1917	\$18,327.78			
CHARLES M. GREEN, Chairman of the Committee on Membership and Finance.				

REPORT OF AUDITING COMMITTEE.

Boston, January 24, 1917.

The undersigned, a duly appointed committee, having examined the books of the Treasurer as of December 23, 1916, find them correctly cast and properly vouchered, and also that the securities called for are in the safe-deposit vaults of the Old Colony Trust Company.

(Signed) EDWARD O. OTIS,
JAMES B. AYER.

BUDGET FOR 1917.

The Committee on Membership and Finance submits, and recommends the adoption of, the following budget for the fiscal year 1917:

ESTIMATED EXPENSE AND APPROPRIATIONS.

President's expense	\$40.00
Secretary's expense	450.00
Librarian's expense	75.00
Treasurer's expense	300.00
District treasurers' expense	1,000.00
Censors' expense	375.00
Supervisors' expense	30.00
Delegates' expense to A. M. A. meetings ..	200.00
Appropriations for salaries:	
Secretary	\$800.00
Treasurer	500.00
Librarian	400.00

INDUSTRIAL HEALTH INSURANCE: A PROTEST.

FALL RIVER, MASS., Feb. 9, 1917.

Mr. Editor:

THE apparently authentic statement having been made that the JOURNAL was about to espouse editorially the cause of Compulsory Industrial Health Insurance, drew a letter of protest from Dr. W. A. Dolan, of the undersigned committee, to Dr. Burrage in his official capacity as the representative of the Massachusetts Medical Society on the editorial staff of the JOURNAL.

The ground of protest is that the JOURNAL carries

on its front page the statement, "Official Organ of the Massachusetts Medical Society," and if it were to take the proposed stand it would not be representing, but misrepresenting a large number, if not the majority of the members of the Society. The Advisory Committee of the JOURNAL, in its praiseworthy efforts to get in touch with all the members of the Society by holding their meetings in all parts of the State, had planned to hold its next meeting in Fall River and invited Dr. Dolan to be present, which kind invitation was accepted.

The meeting took place at the Hotel Mellen, with Drs. Streeter, Bowers, Goldthwait, Jones, Osgood and Worcester present, representing the Committee; Drs. Green and Smith, editor-in-chief and assistant editor; and Mr. Gregory, manager. After a very interesting meeting, at which the experiences of the Committee in its visits to the various districts, were related, Dr. Dolan was asked to make a statement concerning local conditions, and the *esprit*, or lack thereof, existing between the members of the Society in Fall River, and those in and about Boston, and their feeling toward the JOURNAL. The Doctor, in complying with the request, stated briefly, but plainly, some of the grievances of the local men. In the first place, it was felt that the members in and about Boston did not seem alive to, or realize the needs and troubles of the members of the outlying districts, particularly the large industrial centers, and that it was time that the Society aroused itself from this lethargy and gave its assistance to these districts, according to the local conditions therein prevailing, which frequently differ materially from those in and about Boston. This point was well brought out by an incident at a meeting of the Committee on Workmen's Compensation, held recently in Worcester, when the president, Dr. Woodward, made the remark that this question "was certainly waking up the Massachusetts Medical Society"—immediately the cry, "good," and hearty applause on all sides was heard. As the membership of this committee is mostly from industrial centers, it was certainly significant. It may be of interest to note that this excellent and lively committee, which has been holding weekly meetings, is the direct result of the efforts of a few energetic members in Lowell, who succeeded in getting together in Worcester representatives from all the districts, at which a working committee of twenty-two was appointed, on which were homeopaths as well as regulars, and these twenty-two were added by the Council to a dormant committee of five already existing for some time on paper. Dr. Woodward in his stand for progressiveness has been of great help to this committee. The defeat by the Council, a few years ago, of the proposed amendment forbidding members to engage in contract work, other than federal, state and municipal, which had been strenuously urged by the physicians of Fall River, was noted as an act of antagonism to the interests of the local physicians.

In the present instance, at a meeting of the Fall River Medical Society, called for the purpose of discussing compulsory industrial health insurance, and to which all the physicians of the city were invited, after a long, thorough and earnest discussion in which the proponents of and workers for the insurance in question were bitterly yet soberly assailed, it was voted unanimously that the Society oppose in every legitimate way the adoption of such legislation, and it was further voted, that in case such a law was enacted, that the physicians of this city should refuse to sign any panel to perform the services required by the Act. The meeting requested the members of the Council from this city to present this action to the Council at its next meeting, which was done.

That the action of this meeting might be fully appreciated, it was pointed out that Fall River is the third largest city in the Commonwealth, and, in all probability, the largest cotton cloth manufac-

ting centre in the United States, if not in the world, and that the physicians here should be fairly well acquainted with the needs and desires of the working man. The committee was further informed that the six councillors representing this district, which includes the great cotton cloth manufacturing city of New Bedford, are of one mind in opposing the proposed legislation.

Under these conditions, it does not seem wise or fair to these communities, for the JOURNAL, the official mouthpiece of the Massachusetts Medical Society, to take a stand of such hostility.

Again, such a position does not seem to be, and as a matter of fact is not, representative of the feeling of the Massachusetts Medical Society when it is recalled that at a special meeting held for the purpose of discussing the subject, the Council voted unanimously to request the special legislative commission not to recommend any legislation this year, in order that more time might be given for the study of the entire subject.

The visiting physicians expressed themselves as being much pleased with the frank criticisms, and requested that the remarks be sent to the JOURNAL for publication.

The writer begs leave to subscribe himself,
Respectfully yours,

W. A. DOLAN, M.D.

We the undersigned approve the above communication:

George L. Richards, M.D., John H. Gifford, M.D., Thomas F. Gunning, M.D., William H. Blanchette, M.D., William A. Dolan, M.D., members of special committee of the Fall River Medical Society on compulsory industrial health insurance; and of the Massachusetts Medical Society; Arthur C. Lewis, M.D., and Alanson J. Abbe, M.D., president and secretary of the Bristol South District of the Massachusetts Medical Society.

INDUSTRIAL HEALTH INSURANCE: A REJOINDER.

Everett, Mass., February 15, 1917.

Mr. Editor:—

The letter which you publish from I. M. Rubinow, "M. D." is similar to one sent to the Boston daily papers without the title "M. D." last week. In the first of the letter quoted in part I stated "that it would be of interest to see how some of the estimates of the *proponents* of the Young bill worked out." The estimates of 3,000,000 people benefited under the Young bill, 9 days' sickness and \$8,000,000 to pay for the needed medical services were not my estimates, but those given the Everett Medical Society by one of the committee that drafted the Young bill. My part was only to apply the needed arithmetic, with the result published. We were told that I. M. Rubinow helped the committee with the data, and I agree with him that \$30 (thirty cents) a day for sickness, that is provided with surgeons and specialists when needed, does seem cheap from a physician's standpoint. We were also told that 5% of \$24,000,000, or \$1,200,000 was expected to provide the necessary maternity benefits. Part II, Sect. 22, reads: "Maternity benefits shall consist of all necessary medical, surgical, nursing and obstetrical aid, materials and appliances, which shall be given insured women and the wives and widows of insured men." The last published report of the State Board of Health gives 2½% as the birth rate for 1914. The same rate applied to Dr. Rubinow's estimate of 2,250,000 gives 92,978 births for the whole population. If the patients were given the same care provided by either of the two larger hospitals for maternity cases in Boston, at the minimum cost of \$2.50 per day for fourteen days, the cost would be \$35.00 per patient, with free, or

only nominal medical service. \$1,200,000 divided by 35 equals 34,296—about 35% of the whole number of births in the state, and about half the sum needed under a free medical service system to meet the minimum birth rate among the protected families. The profession generally can judge whether this seems adequate to pay the physician for his part and do the other things now considered necessary under the standards of our best hospitals. The bill provides that the necessary nursing service, surgeons, specialists, hospital service, medicine and supplies shall be furnished to the insured and the dependent members of his family. If there were only six days' sickness for 2,250,000 population, "Dr." Rubinow's estimate, the estimate would provide \$6.00 a day; if there were ten days' sickness it would provide \$3.35 a day. The expense in Leipzig of 7 1-3 office calls, less than two home calls per family of insured, hardly fits the situation in Massachusetts. The general practitioner finds most of his patients sick in bed rather than waiting for him in his office. There are other estimates that need revising to fit Massachusetts conditions. There are many facts available, and if we are going to consider this proposition seriously let the medical men of Massachusetts find them and apply them.

Personally, I think it cruel to expect "Dr." Rubinow, of 131 East 23rd street, New York City, to respond to night calls for information from Massachusetts.

GEO. E. WHITEHILL, M. D.

Miscellany.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The forty-seventh meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, February 23, 1917, at 8:15 p.m. The following papers will be read:

1. Certain Aspects of Epilepsy in Children, George Clymer, M.D., Boston.
2. Hemorrhagic Conditions with Special Reference to Purpura, George R. Minot, M.D., Boston. Discussion opened by Beth Vincent, M.D., Boston.
3. Iliac Adenitis and Abscess, Charles J. Mixter, M.D., Boston.
4. General discussion of Health Insurance.

Light refreshments will be served after the meeting.

MAYNARD LADD, M.D., President.
RICHARD M. SMITH, M.D., Secretary.

THE HARVEY SOCIETY.—The seventh lecture of the series will be given at the New York Academy of Medicine, 17 West Forty-Third Street, on Saturday evening, February 24, at 8:30 o'clock, by Professor John R. Murlin, Cornell University. Subject: "The Metabolism of Mother and Offspring before and after Parturition."

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Feb. 27, at 8 p.m., sharp. Business: Communication: "The Clinical Significance of Test of Renal Function," James P. O'Hare, M.D.; Discussion by William C. Quinby, M.D.

BRADFORD KENT, M.D., Secretary.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—Meeting for medical improvement at United States Hotel, Boston, Thursday, March 1, 1917, at 11:30 a.m.

Reader: Henry F. Hewes, M.D., of Boston, for Joseph Chase, Jr., M.D., of East Weymouth. Subject: "Points in the Diagnosis of Diseases of the Stomach, Duodenum, Intestines and Gall Bladder."

F. H. MERRIAM, M.D., Secretary.

APPOINTMENTS.

DR. EDWARD R. MAGUIRE of Buffalo, N. Y., has been elected to succeed the late Dr. Roswell Park as professor of surgery in the Medical Department of the University of Buffalo.

TUFTS DENTAL SCHOOL.—Dr. William Rice has been appointed dean of Tufts Dental School, where he has been professor of operative dentistry since 1914.

RECENT DEATHS.

WILLIAM MABON, M.D., superintendent of the Manhattan State Hospital, New York, N. Y., died there on February 9, of pneumonia. He was born in New Durham, N. J., in 1860, the son of the Rev. William V. Mabon. He was graduated from the Bellevue Hospital Medical College, and later became superintendent of the Bellevue Hospital. Prior to his appointment to the Manhattan State Hospital, Dr. Mabon was president of the State Commission on Lunacy. He had been superintendent of the Manhattan State Hospital since 1906, and had a wide reputation as an alienist.

MARY MONOGHAN, M.D., of Waltham, Mass., died at her home on February 7. Dr. Monaghan was born in 1872, graduated from Lowell High School, and entered the Massachusetts College of Pharmacy. She left this school in her junior year to enter Tufts Medical College, from which she graduated in 1912, and began practice in Waltham in 1914. She was a member of the American Medical Association and the Waltham Medical Club.

FRANK E. ALLARD, M.D., a Boston physician, died at his home in Wellesley, Mass., on February 4, at the age of 54 years. Dr. Allard was born in Wheelock, Vermont, and graduated from Dartmouth in 1885. The next four years he was principal of the Boston Farm School. He received his degree of M.D. from Boston University Medical School in 1892. He was associated with a number of life insurance companies, having held the office of president of the American Association of Medical Examiners. He taught in the Medical School of Boston University and was a member of Massachusetts Homeopathic Society, the American Institute of Homeopathy and the Boston Homeopathic Society. He is survived by his widow and one daughter.

DR. OSWALDO CRUZ, director of the Oswaldo Cruz Institute of Pathology and Bacteriology, died recently at Rio Janeiro. Dr. Cruz was formerly director of the Brazilian Sanitary Service, and was widely known as a bacteriologist.

ROBERT MARSHALL WHITE, M.D., of Dorchester, Mass., died of pneumonia at his home recently. He was born in Gloucester, Mass., in 1878, and graduated from Tufts Medical School in 1909. He served as intern two years in St. John's Hospital in Providence and one year at the Lying-in Hospital in New York City, and had practised his profession in Dorchester for the past four years. He is survived by his widow.

HENRY DWIGHT HOLTON, M.D., who died on February 12, at Brattleboro, Vt., was born in 1839. He was formerly president of the American Public Health Association, and was for many years secretary of the Vermont State Board of Health. In 1902 he was a delegate from the American Medical Association to the International Medical Congress at Brussels.

ASA STONE COUCH, M.D., formerly president of the Homeopathic Medical Society of the State of New York, died in New York City on February 1, at the age of eighty-four. Before going to New York Dr. Couch had lived for many years in Fredonia, N. Y. He had taught anatomy in Chicago and Philadelphia and was one of the organizers of the New York State Hospitals for the Insane at Middletown and at Tonawanda.